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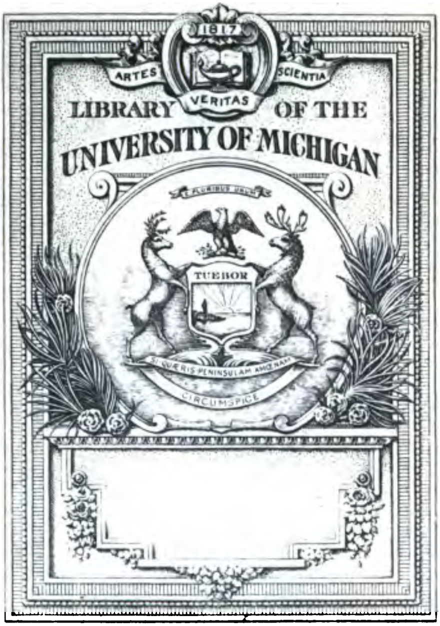
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THE
Gentleman's Diary,
OR THE
MATHEMATICAL REPOSITORY;

An ALMANACK
For the YEAR of our LORD, 1758,

BEING

The Second after BISSEXTILE, or LEAP-YEAR

Containing many uſeful and entertaining Particulars peculiarly adapted to the ingenious Gentlemen engaged in the delightful Study and Practice of the

MATHEMATICKS.

The Eighteenth *Almanack* publiſhed of this Kind and the Sixth of the NEW STYLE in *England*.

——— Quâ causâ argentea Phœbe
Paſſibus haud æquis graditur; cur ſubdita nulli
Hactenus Aſtronomo numerorum fræna recuſat:
Cur remeant Nodi, curque Auges progrediuntur.
——— Quantis refluum vaga Cynthia pontum
Viribus impellit; dum fractis fluctibus ulvam
Deſerit, ac Nautis ſuſpectas nudat arenas,
Alternis vicibus ſuprema ad littora pulſans.

LONDON,
Printed for the Company of STATIONERS.
MDCCLVIII.
[Price Nine-pence ſtitch'd]

FEBRUARY hath XXVIII Days.

M D	☉ Dec South	
1	17°	2′
6	15	33
11	13	57
16	12	15
21	10	28
26	8	38

Laſt Quarter the 1ſt	Day at	41 min. paſt 9 Morn.
New Moon the 8th		41 min. paſt 4 Morn.
Firſt Quarter the 14th		3 quart. paſt 10 at Night.
Full Moon the 23d		55 min. paſt 1 Morn.

M D	W D	Sundays, Holy and Remarkable Days, Length, Incr. Days, Terms, Fairs, &c.	☽ Rises and Sets	Moon Sout
1	W	*Bromley*, Lanc. *Reading*, Berks,	0 M 18	5 M 40
2	Th	Candlemas, or P. B. V. M,	1 28	6 29
3	F	On the Mor. of Purif. of bleſſ. *Mary*	2 41	7 20
4	S	*Graveſend*, Kent. *Plymouth*, Dev.	3 53	8 17
5	A	**Quinq. or Shrove Sunday.**	4 59	9 18
6	M	Days 9 hours 22 minutes long.	6 3	10 19
7	Tu	**Shrove Tueſday** ☉ Ec. Invis. 8.	6 54	11 22
8	W	Aſh Wedneſday, 1ſt Day of Lent.	☽ Sets	0 A 24
9	Th	*Namptwich*, Cheſh. *Stamford*, Linc.	6 A 38	1 26
10	F	In eight Days of Purif. of bleſſ. *Mary*,	8 1	2 21
11	S	*Llandyſſel*, Monmouthſhire.	9 22	3 13
12	A	**Quadrageſ. 1 Sun. in Lent.**	10 40	4 2
13	M	Term Ends. Old Candlemas Day.	11 56	4 49
14	Tu	**Valentine**, Biſh. and M. *Flint*.	Morn.	5 38
15	W	**Ember Week.**	1 6	6 25
16	Th	Days are now increaſed, and Nights	2 14	7 13
17	F	ſhortened 2 hours 26 minutes.	3 16	8 1
18	S.	Day 10 hours 12 minutes long.	4 12	8 50
19	A	**Reminiſcere, 2 Sunday in Lent.**	5 3	9 40
20	M	*Beverley*, Yorkſhire.	5 44	10 28
21	Tu	*Norton*, Oxf.	6 16	11 15
22	W	*Godalming*, Surrey.	6 45	Morn.
23	Th	Day 10 hours 36 minutes long.	☽ Riſes	0 2
24	F	**St. Matthias Ap. and M.** *Bath*, Som	6 A 48	0 46
25	S	*Feverſham*, Kent. *Caernarvon*. *Matlock*.	7 53	1 29
26	A	**Oculi, 3 Sunday in Lent.**	9 1	2 12
27	M	*Oundle*, Northampt.	10 10	2 54
28	Tu	*Cheſterfield*. Derbyſhire.	11 19	3 39

M D	☉ Riſes	☉ Sets	♄ Sets	♃ Riſes	♂ Riſes	♀ Riſes	☿ Sets	Cl. faſt.
1	7 26	4 35	5 A 27	3 M 49	4 A 15	9 A 1	5 A 27	14′ 11″
6	7 20	4 41	5 10	3 32	Sets	9 7	Riſes	14 38
11	7 8	4 53	4 54	3 17	7 M 25	9 10	6 M 17	14 46
16	6 59	5 2	Riſes	3 0	7 1	9 11	5 58	14 36
21	6 49	5 12	6 M 43	2 44	6 38	9 10	5 47	14 5
26	6 39	5 22	6 25	2 28	6 14	9 5	5 42	13 10

MARCH hath XXXI Days.

Laſt Quarter the 2d New Moon the 9th Firſt Quarter the 16th Full Moon the 24th	Day at	56 min. paſt 10 at Night. 46 m. paſt 2 Afternoon. half paſt 2 Afternoon. 41 min. paſt 7 at Night.

☉ in ♈ 20 Days 3 Hours 33 Minutes, apparent Time.

M D	☉ Dec South	
1	7°	3
6	5	3
11	3	3
16	1	3
21	0 N.	2
26	2	1

1	W	**David** Arch. B. M. *Galgarth*, Breck.	R Morn.		4 M	2
2	Th	Cedde, or Chad. B. L. *Stockport*, Cheſh.	0	29	5	14
3	F	Days are now above 11 hours long.	1	40	6	
4	S	*Melton-Mowbray*, Leic.	2	48	7	3
5	A	**Lætare, 4 S. in Lent. Midlent Sunday.**	3	51	8	4
6	M	*Epping*, Eſſex. *Rochford*, Eſſex.	4	46	9	5
7	Tu	**Nottingham** *Fair, for all ſorts of Cattle.*	5	30	10	
8	W	Days are now increaſed, and Nights	6	6	11	7
9	Th	ſhorten'd 3 hours 45 minutes.	☽ Sets		0 A	
10	F	*We need not be much anxious as to the*	6 A	56	1	0
11	S	*Weather* (GOD *knows what is the beſt*)	8	19	1	54
12	A	**Judica, 5 Sunday in Lent.**	9	41	2	44
13	M	Days are increaſing daily.	10	56	3	35
14	Tu	*Brimwelbanks*, Nort.	Morn.		4	22
15	W	*Oakham*, Rut. *Oſweſtry*, Shropſhire.	0	7	5	13
16	Th	*Penſance*, Cornw.	1	13	6	1
17	F	*Hariff*, Hunt. *Malmſbury*, Wilts.	2	14	6	51
18	S	*Loughbro'*, Leic. *Workſop*, Nott.	3	5	7	41
19	A	**Palm Sunday. 6 Sunday in Lent.**	3	49	8	30
20	M	*Dolton*, Dev. *Durham*, *Ruthin*, Denb.	4	26	9	18
21	Tu	*Downes*, Devon.	4	55	10	3
22	W	Equal Day and Night.	5	21	10	49
23	Th	**Nottingham**, *for all ſorts of Cattle.*	5	45	11	30
24	F	**Good Friday.**	☽ Riſes		Morn.	
25	S	**Annunc. Lady Day. Pr. EDWARD born**	7 A	0	0	15
26	A	**EASTER DAY. Our SAV. Reſur.**	8	9	1	2
27	M	**Eaſter Monday.** *Affreton*, D.	9	18	1	45
28	Tu	**Eaſter Tueſday.**	10	29	2	30
29	W	*Preſton*, Lanc. *Stourbridge*, Worceſt.	11	39	3	20
30	Th	Days 12 hours and 3 quarter long.	Morn.		4	
31	F	*Midhurſt*. Suſſ. *Northmore*, *Derby*.	0	47	5	

M D	☉ Riſes		☉ Sets		♄ Riſes		♃ Riſes		♂ Sets		♀ Sets		☿ Riſes		Cl. bef. ☉	
1	6	34	5	27	6 M	15	2 M	19	6 M	1	9 A	0	5 M	41	12′	4
6	6	24	5	37	5	58	2	2	5	40	8	47	5	39	11	38
11	6	14	5	47	5	40	1	46	5	20	8	28	5	37	10	21
16	6	4	5	57	5	23	1	29	4	59	8	1	5	35	8	55
21	5	54	6	7	5	6	1	13	4	40	7	31	5	32	7	24
26	5	44	6	17	4	49	0	56	4	22	6	5	5	28	5	5

FEBRUARY hath XXVIII Days.

Laſt Quarter the 1ſt	Day at	41 min. paſt 9 Morn.
New Moon the 8th		41 min. paſt 4 Morn.
Firſt Quarter the 14th		3 quart. paſt 10 at Night.
Full Moon the 23d		55 min. paſt 1 Morn.

M D	☉ Dec South	
1	17°	2′
6	15	33
11	13	57
16	12	15
21	10	28
26	8	38

M D	W D	Sundays, Holy and Remarkable Days, Length, Incr. Days, Terms, Fairs, &c.	☽ Riſes and Sets	Moon Sout
1	W	*Bromley*, Lanc. *Reading*, Berks,	0 M 18	5 M 40
2	Th	Candlemas, or P. B. V. M,	1 28	6 29
3	F	On the Mor. of Purif. of bleſſ. *Mary*	2 41	7 20
4	S	*Graveſend*, Kent. *Plymouth*, Dev.	3 53	8 17
5	A	**Quinq. or Shrove Sunday.**	4 59	9 18
6	M	Days 9 hours 22 minutes long.	6 3	10 19
7	Tu	**Shrove Tueſday** ☉ Ec. Invis. 8.	6 54	11 22
8	W	Aſh Wedneſday, 1ſt Day of Lent.	☽ Sets	0 A 24
9	Th	*Namptwich*, Cheſh. *Stamford*, Linc.	6 A 38	1 26
10	F	In eight Days of Purif. of bleſſ. *Mary*,	8 1	2 21
11	S	*Llandyſſel*, Monmouthſhire.	9 22	3 13
12	A	**Quadrageſ. 1 Sun. in Lent.**	10 40	4 2
13	M	Term Ends. Old Candlemas Day.	11 56	4 49
14	Tu	**Valentine**, Biſh. and M. *Flint*.	Morn.	5 38
15	W	**Ember Week.**	1 6	6 25
16	Th	Days are now increaſed, and Nights	2 14	7 13
17	F	ſhortened 2 hours 26 minutes.	3 16	8 1
18	S	Day 10 hours 12 minutes long.	4 12	8 50
19	A	**Reminiſcere, 2 Sunday in Lent.**	5 3	9 40
20	M	*Beverley*, Yorkſhire.	5 44	10 28
21	Tu	*Norton*, Oxf.	6 16	11 15
22	W	*Godalming*, Surrey.	6 45	Morn.
23	Th	Day 10 hours 36 minutes long.	☽ Riſes	0 2
24	F	**St. MATTHIAS Ap. and M.** *Bath*, Som	6 A 48	0 46
25	S	*Feverſham*, Kent. *Caernarvon*. *Matlock*.	7 53	1 29
26	A	**Oculi, 3 Sunday in Lent.**	9 1	2 12
27	M	*Oundle*, Northampt.	10 10	2 54
28	Tu	*Cheſterfield*. Derbyſhire.	11 19	3 39

M D	☉ Riſes	☉ Sets	♄ Sets	♃ Riſes	♂ Riſes	♀ Riſes	☿ Sets	Cl. faſt.
1	7 26	4 35	5 A 27	3 M 49	4 A 15	9 A 1	5 A 27	14′ 11″
6	7 20	4 41	5 10	3 32	Sets	9 7	Riſes	14 38
11	7 8	4 53	4 54	3 17	7 M 25	9 10	6 M 17	14 46
16	6 59	5 2	Riſes	3 0	7 1	9 11	5 58	14 36
21	6 49	5 12	6 M 43	2 44	6 38	9 10	5 47	14 5
26	6 39	5 22	6 25	2 28	6 14	9 5	5 42	13 3

MARCH hath XXXI Days.

M D	☉ Decl South
1	7° 30
6	5 3
11	3 37
16	1 3
21	0 N. 2
26	2 1

Laſt Quarter the 2d } Day at { 56 min. paſt 10 at Night.
New Moon the 9th } Day at { 46 m. paſt 2 Afternoon.
Firſt Quarter the 16th } Day at { half paſt 2 Afternoon.
Full Moon the 24th } Day at { 41 min. paſt 7 at Night.

☉ in ♈ 20 Days 3 Hours 33 Minutes, apparent Time.

1	W	**David** Arch. B. M. *Galgarth*, Breck.	R Morn.		4 M	2
2	Th	Cedde, or Chad. B. L. *Stockport*, Cheſh.	0	29	5	14
3	F	Days are now above 11 hours long.	1	40	6	
4	S	*Melton-Mowbray*, Leic.	2	48	7	3
5	A	**Lætare, 4 S. in Lent. Midlent Sunday.**	3	51	8	4
6	M	*Epping*, Eſſex. *Rochford*, Eſſex.	4	46	9	5
7	Tu	**Nottingham** *Fair, for all ſorts of Cattle.*	5	30	10	
8	W	Days are now increaſed, and Nights	6	6	11	7
9	Th	ſhorten'd 3 hours 45 minutes.	☽ Sets		0 A	
10	F	*We need not be much anxious as to the*	6 A	56	1	0
11	S	*Weather* (God *knows what is the beſt*)	8	19	1	54
12	A	**Judica, 5 Sunday in Lent.**	9	41	2	44
13	M	Days are increaſing daily.	10	56	3	35
14	Tu	*Brimwelbanks*, Nort.	Morn.		4	22
15	W	*Oakham*, Rut. *Oſweſtry*, Shropſhire.	0	7	5	13
16	Th	*Penſance*, Cornw.	1	13	6	1
17	F	*Hariff*, Hunt. *Malmſbury*, Wilts.	2	14	6	51
18	S	*Loughbro'*, Leic. *Workſop*, Nott.	3	5	7	41
19	A	**Palm Sunday. 6 Sunday in Lent.**	3	49	8	30
20	M	*Dolton*, Dev. *Durham*, *Ruthin*, Denb.	4	26	9	18
21	Tu	*Downes*, Devon.	4	55	10	3
22	W	Equal Day and Night.	5	21	10	49
23	Th	**Nottingham,** *for all ſorts of Cattle.*	5	45	11	30
24	F	**Good Friday.**	☽ Riſes		Morn.	
25	S	**Annunc. Lady Day. Pr. Edward born**	7 A	0	0	15
26	A	**Easter Day. Our Sav. Reſur.**	8	9	1	2
27	M	**Eaſter Monday.** *Affreton*, D.	9	18	1	4
28	Tu	**Eaſter Tueſday.**	10	29	2	3
29	W	*Preſton*, Lanc. *Stourbridge*, Worceſt.	11	39	3	2
30	Th	Days 12 hours and 3 quarter long.	Morn.		4	
31	F	*Midhurſt*. Suſſ. *Northmore*, *Derby*.	0	47	5	

M D	☉ Riſes		☉ Sets		♄ Riſes		♃ Riſes		♂ Sets		♀ Sets		☿ Riſes		Cl. bef. ☉	
1	6	34	5	27	6 M	15	2 M	19	6 M	1	9 A	0	5 M	41	12′	4
6	6	24	5	37	5	58	2	2	5	40	8	47	5	39	11	38
11	6	14	5	47	5	40	1	46	5	20	8	28	5	37	10	21
16	6	4	5	57	5	23	1	29	4	59	8	1	5	35	8	55
21	5	54	6	7	5	6	1	13	4	40	7	31	5	32	7	24
26	5	44	6	17	4	49	0	56	4	22	6	5	5	28	5	5

APRIL hath xxx Days.

aſt Quarter the 1ſt	Day at	49 min. paſt 8 Morn.
New Moon the 8th		24 min. paſt Midnight.
irſt Quarter the 15th		10 min. paſt 8 Morning.
Full Moon the 23d		40 min. paſt 10 Morn.
aſt Quarter the 30th		3 qu. paſt 3 Afternoon.

M D	☉ Decl. North.	
1	4°	37
6	6	32
11	8	24
16	10	12
21	11	56
26	13	35

1	S	All Fools Day. *Coventry*, Warwickſhire.	1 M	52	6 M	0
2	A	Low Sunday. 1 Sunday after Eaſter.	2	48	6	58
3	M	*Northampton*, *Cheſterfield*, Derb.	3	35	8	1
4	Tu	*Llanerkemith*, Angl. *Northfleet*, Kent.	4	12	9	0
5	W	Old Lady D. *Doncaſter*. *Huntington*.	4	45	9	56
6	Th	*Epping*, Eſſex. *Rochford*, Eſſex.	5	13	10	53
7	F	*Aſherton*, Warwickſhire.	5	38	11	45
8	S	Days increaſed above 5 hours.	☽ Sets		0 A	33
9	A	2 Sunday after Eaſter.	8 A	39	1	24
10	M	Quind. Paſch. 1 Ret.	9	54	2	14
11	Tu	Days 13 hours 36 minutes long.	11	6	3	4
12	W	Term begins. *Haltwhiſtle*, North.	Morn.		3	55
13	Th	*Aſhbourn*, Derb. *Budworth*, Cheſ.	0	10	4	47
14	F	Days increaſed 6 hours 2 minutes.	1	8	5	37
15	S	*Bewley*, Hampſhire. *Derby*.	1	55	6	29
16	A	**3 Sunday after Eaſter.**	2	35	7	17
17	M	Tres. Paſch. 2 Ret. *Malmſbury*.	3	7	8	1
18	Tu	*Cobham*, Surry, *Derby*.	3	34	8	49
19	W	*Cane Abbey*, Dorſ. *Elmore Green*, Dorſ.	3	57	9	35
20	Th	*Worceſter*. *Cank*, Staff. *Norſe*, Devonſh.	4	18	10	18
21	F	*Modbury*, Devonſh. *Rumney*, Kent.	4	38	11	3
22	S	*Shrewſbury*. *Giſborough*, Yorkſh.	4	58	11	44
23	A	**4 Sunday after Eaſter. St. GEORGE.**	☽ Riſes		Morn.	
24	M	Mens. Paſch. 3 Ret.	8 A	27	0	27
25	Tu	**St. MARK Ev. & M.**	9	38	1	15
26	W	**Prince WILLIAM born.**	10	49	2	6
27	Th	*Boroughbridge*, Yorkſh.	11	55	3	1
28	F	*Soham*, Cambr. *Aberforth*, Yorkſh.	Morn.		3	59
29	S	*Market Harbro'* Leic. *Newchurch*, Lanc.	0	52	5	1
30	A	**5 Sunday after Eaſt. Rogat. Sunday.**	1	42	5	59

M D	☉ Riſes		☉ Sets		♄ Riſes		♃ Riſes		♂ Sets		♀ Sets		☿ Riſes		C. bef. ☉	
1	5	33	6	28	4 M	29	0 M	35	4 M	1	6 A	9	5 M	22	3′	59″
6	5	23	6	38	4	11	0	16	3	43	Riſes		5	17	2	30
11	5	13	6	48	3	53	11 A	54	3	26	4 M	3	5	11	1	3
16	5	4	6	57	3	37	11	36	3	11	3	51	Sets		0 Aft.	16
21	4	54	7	7	3	19	11	17	2	55	3	40	7 A	51	1	23
26	4	45	7	16	3	1	10	57	2	39	3	29	8	34	2	22

MAY hath XXXI Days.

New Moon the 7th } Day at { 10 in the Morning.
Firſt Quarter the 15th } Day at { half paſt 2 Morning.
Full Moon the 22d } Day at { 38 min. paſt 10 at Night.
Laſt Quarter the 29th } Day at { 3 quarter paſt 8 at Night.

M D	☉ Dec. North.	
1	15°	00'
6	16	36
11	17	56
16	19	9
21	20	14
26	21	11

1	M	St. Ph. & Jac. Ap. & M. Q. Paſch. 4 Ret.	2M	22	6M	5
2	Tu	*Totneſs.* *Lancaſtar*, *Arundel*, Suſſex.	2	55	7	5
3	W	Rogation Week. Invent. of the Croſs.	3	22	8	4
4	Th	**Holy Thurſday, Christ's Aſcenſion**	3	46	9	3
5	F	Craſt. Aſcen. 5 Ret. *Boſton*, *Derby*,	4	10	10	2
6	S	*Abingdon.* Berks. *Kendall*, Weſtmor.	4	34	11	1
7	A	**Exaudi. 6 Sunday after Eaſter.**	☽ Sets		0 A	
8	M	**Term ends.** *Phillips-Norton*, Som.	8A	52	0	5
9	Tu	*Boſworth*, Leic *Tockington* Glouceſt.	10	1	1	4
10	W	*Higham-Ferrers*, Northamp *Lutterworth*	11	2	2	4
11	Th	*Leiceſter.* *Dunſtable*, Bedf. *Crediton*, Dev.	11	54	3	2
12	F	Old May Day. *Hertford*, *Tuxford*, War.	Morn.		4	2
13	S	*Tiddeſwel*, Derb *Crouch*, Eſſ *Bala*, Meri.	0	38	5	1
14	A	**Whit. Sunday.**	1	13	6	1
15	M	**Whit. Monday.** *Southwell*, Nott.	1	42	6	4
16	Tu	**Whit. Tueſday** *Newark*, Notting.	2	6	7	3
17	W	**Ember Week.** *Lenton*, Nott.	2	27	8	1
18	Th	*Lenton*, Nott. *Hateſbury.* Bucks.	2	45	8	5
19	F	*Derby.* *Hereford.* *Rochcſter.*	3	5	9	4
20	S	*Galgarth.* Breckn. *Wickham*, Hants.	3	24	10	2
21	A	**Trinity Sunday.**	3	46	11	1
22	M	Craſt. Trin. 1 Ret.	☽ Riſes		Morn.	
23	Tu	*Sheffield*, Yorkſh. *Tho. Hare.*	8A	38	0	3
24	W	**Prince Frederick William born.**	9	48	0	5
25	Th	*Dagenham*, Eſſ. *Malmſbury*, W.	10	50	1	5
26	F	**Term begins.**	11	43	2	5
27	S	Venerable Bede, *Stortford*, Hertford.	Morn.		3	5
28	A	**1 Sunday after Trinity.**	0	22	4	5
29	M	**K. Char. II. Nat. and Ret.**	0	58	5	4
30	Tu	*Aldſtone*, Cum. *Oehill*, Ox. *Workſop.*	1	27	6	4
31	W	Days increaſed 8 hours and half.	1	51	7	3

M D	☉ Riſes		☉ Sets		♄ Riſes		♃ Riſes		♂ Sets		♀ Riſes		☿ Sets		Cl. aft.	
1	4	36	7	25	2M	43	10 A	36	2 M	24	3 M	19	9 A	14	3'	8"
6	4	28	7	33	2	25	10	14	2	8	3	9	9	42	3	45
11	4	20	7	41	2	7	9	52	1	52	2	59	9	58	3	58
16	4	12	7	48	1	48	9	29	1	37	2	49	10	0	4	2
21	4	5	7	55	1	29	9	7	1	21	2	18	9	49	3	51
26	4	0	8	0	1	9	8	44	1	5	2	29	9	25	3	27

JUNE hath xxx Days.

New Moon the 5th	Day at	36 min. paſt 8 at Night.
Firſt Quarter the 13th		8 in the Afternoon.
Full Moon the 21th		21 min. paſt 8 Morn.
Laſt Quarter the 28th		20 min. paſt 1 Morn.

☉ in ♋ 21 Day 2 Hours 33 Minutes apparent Time.

M. D	☉ Decl. North
1	22° 6′
6	22 42
11	23 8
16	23 24
21	23 29
26	23 24

1	Th	Days 16 hours and a quarter long.	2 M 16	8 M 25
2	F	*Daventry. Northampton.*	2 37	9 15
3	S	*Harſley-Green*, Lanc. *Kerby-Steph.*	3 0	10 1
4	A	2 Sunday after Trinity.	3 27	10 51
5	M	(Pr. of WALES bo. 4th Day 1738.)	☽ Sets	11 41
6	Tu	*Folkingham*, Linc. *Lenham*, Kent.	8 A 47	0 A 32
7	W	*Montgomery. Stow in Guillam*, Suff.	9 43	1 24
8	Th	*St. Germains*, Cornwall.	10 30	2 16
9	F	*Hadderſfield*, Suſſex.	11 9	3 7
10	S	Prs. AMELIA born 1711.	11 40	3 53
11	A	3 Sunday after Trinity.	Morn.	4 40
12	M	(11 St. Barnabas Ap. & M.	0 7	5 25
13	Tu	*Kedderminſter*, Wor. *Manhemot.*	0 29	6 9
14	W	Term ends. *Bangor*, Cornwall.	0 49	6 52
15	Th	*Ryſton*, Somerſetſhire.	1 7	7 34
16	F	Days 16 hours and above half long.	1 25	8 18
17	S	*S. Alban*, M. K. of Weſt. Sax.	1 45	9 3
8	A	4 Sunday after Trinity.	2 7	9 54
9	M	*Ingleton*, Yorkſh.	2 35	10 46
20	Tu	Tranſl. of Edw. K. of Weſt. Sax.	3 9	11 43
21	W	The longeſt Day in this Year.	☽ Riſes	Morn.
22	Th	K. GEORGE II. Inaug.	9 A 32	0 42
23	F	*Armington*, Dev. *Folkingham*, Linc. Faſt.	10 18	1 43
24	S	Nativ. of St. JOHN Bap.	10 56	2 41
5	A	5 Sunday after Trinity.	11 27	3 42
6	M	K. GEORGE II. proclaimed.	11 53	4 39
7	Tu	*Boſton*, Linc. *Burton*, Staff.	Morn.	5 32
8	W	*Folkſtone, Stow Green*, Do. (Faſt	0 17	6 20
9	Th	St. Peter Ap. & M.	0 37	7 6
0	F	*Bridgenorth*, Shropſhire.	1 0	7 54

D	☉ Riſe	☉ Sets	♄ Riſes	♃ Riſes	♂ Sets	♀ Riſes	☿ Sets	C. aft. ☉
1	3 53	8 7	0 M 45	8 A 16	0 M 45	2 M 17	8 A 42	2′ 43″
6	3 50	8 10	0 24	Sets	0 29	2 6	Riſes	1 54
11	3 46	8 14	0 4	3 M 38	0 12	1 56	3 M 54	0 57
16	3 44	8 16	11 A 39	3 15	11 A 51	1 47	3 30	ob. f. 4
21	3 43	8 17	11 19	2 52	11 36	1 38	3 7	1 8
26	3 44	8 16	10 58	2 30	11 20	1 30	2 49	2 11

JULY hath XXXI Days.

New Moon the 5th	Day at	43 min. paſt 8 Morn.
Firſt Quarter the 13th		5 min. paſt Noon.
Full Moon the 20th		34 min. paſt 4 Afternoon.
Laſt Quarter the 27th		4 min. paſt 7 Morn.

M D	☉ Decl. North.	
1	23°	9
6	22	50
11	22	9
16	21	24
21	20	30
26	19	28

1	S	*Workſop*, Nott: *Hith*, K. *Thornby Ab.* Ely.	1 M	25	8 M	44
2	A	6 Sunday after Trinity.	1	52	9	33
3	M	*Dereham*, Norf. *Shrewſbury*.	2	25	10	21
4	Tu	Tranſl. of S. Mart. B. & C.	3	4	11	14
5	W	☉ Eclipſed, Inviſ. *Leiceſter*.	☽ Sets		0 A	6
6	Th	*Lancaſter*. *Liverpool*. *Winborn*.	9 A	2	0	55
7	F	Tho. a Becket, *Chipping-Norton*,	9	37	1	44
8	S	*Folkeſtone*, Kent. *Machynleth*, Montg.	10	4	2	32
9	A	7 Sunday after Trinity.	10	28	3	17
10	M	*Mansfield*, Nott. *Bolton*, Lanc.	10	48	4	0
11	Tu	*Peterborough*, Northamptonſhire.	11	6	4	44
12	W	*Canterbury*, Kent. *Carſhalton*, Surry.	11	25	5	26
13	Th	*Congleton*, Cheſh. *Huntingdon*.	11	44	6	7
14	F	Days grow ſhorter every Day.	Morn.		6	49
15	S	Swithun, B. of Wincheſt. Tranſl.	0	5	7	37
16	A	8 Sunday after Trinity,	0	29	8	27
17	M	*Belt*, Breckn. *Leek*, Staffordſh.	0	58	9	19
18	Tu	*Exeter*, Devonſh. *Huntindon*, Hant.	1	35	10	18
19	W	*Kenninghal*, Norfolk.	2	24	11	19
20	Th	☽ Eclipſed, Invis. Marg. V. & M	☽ Riſes		Morn.	
21	F	*Fotheringhay* (W. Smith) *Alfreton*, Derb	8 A	50	0	24
22	S	Prs. CAR. MAT. born. M. Magdalene.	9	25	1	2
23	A	9 Sunday after Trinity.	9	52	2	2
24	M	*Farringhay*, Kent. (Faſt	10	18	3	2
25	Tu	St. JAMES Ap. & M. *Derby*.	10	40	4	1
26	W	S. Anne, Mother to the Bl. Virg. Mary.	11	3	5	
27	Th	*Heedon*, Yorkſh. *Milſon*, Wilts.	11	27	5	5
28	F	*Emlin*, Worc. *Winchcomb*, Glou.	11	53	6	3
29	S	Days are now ſhortened above an hour.	Morn.		7	2
30	A	10 Sunday after Trinity.	0	25	8	1
31	M	*Alfreton*, Derb *Honiton*, Devon.	1	1	9	

M D	☉ Riſes		☉ Sets		♄ Riſes		♃ Sets		♂ Sets		♀ Riſes		☿ Riſes		Cl. b-f ☉	
1	3	46	8	14	10 A	37	2 M	7	11 A	3	1 M	23	2 M	55	3	15
6	3	49	8	11	10	17	1	46	10	47	1	16	2	29	4	7
11	3	53	8	7	9	56	1	23	10	30	1	10	2	30	4	52
16	3	58	8	2	9	36	1	2	10	14	1	7	2	42	5	28
21	4	4	7	56	9	15	0	41	9	59	1	5	3	6	5	49
26	4	11	7	49	8	55	0	20	9	[illegible]	1	5	3	41	5	57

AUGUST hath XXXI Days.

M D	☉ Decl. North.	
1	18°	30′
6	16	43
11	15	20
16	13	45
21	12	7
26	10	25

ew Moon the 3d	Day at	58 m. after 10 at Night.
rſt Quarter the 12th		24 min. paſt 2 Morn.
ll Moon the 19th		17 min. paſt Midnight.
ſt Quarter the 25th		32 min. paſt 3 Afternoon.

1	Tu	**Lamas Day. Dog Days begins.**	1 M 46	9 M 59
2	W	*Wincheſter*, Hampſh. *Northwich*, Cheſh.	2 37	10 4
3	Th	*Carnarvon. Daventry*, *Redruth.*	☽ Sets	11 38
4	F	*Epſom*, Surry. *Ravenglaſs*, Cumb.	8 A 6	0 A 27
5	S	*Doncaſter*, York. *Stamford*, Linc.	8 31	1 13
6	A	**11 Sunday after Trinity.**	8 52	1 55
7	M	Name of Jeſus. *Boſton*, Linc.	9 12	2 39
8	Tu	*Finfut*, Cornw. *Ruthin*, Denb.	9 31	3 22
9	W	*Llanwrſt*, Denb. *Skirkin*, Middleſex.	9 49	4 2
0	Th	S. Laur. Arch. D. of R. & M.	10 9	4 44
1	F	**Princeſs AUGUSTA born 1737.**	10 31	5 30
2	S	Old Lamas. *Newcaſtle*. *Dunſtable*,	10 57	6 18
3	A	**12 Sunday after Trinity.**	11 30	7 8
4	M	*Stow*, Suffolk.	Morn.	8 3
5	Tu	*Bakewell*, Derb. *Northampton.*	0 12	9 2
6	W	*Aſhburn*, Derb. *Giſborough*, Yorkſh.	1 7	10 6
7	Th	*Bardney*, Hampſhire.	2 13	11 7
8	F	Days ſhortened above 2 hours.	3 30	Morn.
9	S	*Dartington*, Devonſhire.	☽ Riſes	0 8
0	A	**13 Sunday after Trinity.**	8 A 22	1 4
1	M	*Arundel*, Suſſex. *Crediton*, Devon.	8 46	2 1
2	Tu	*Bracknell*, Berk. *Penkridge*, Staff.	9 9	2 56
3	W	*Belford*, Northum. *Dinton*, Oxf. Faſt.	9 34	3 45
4	Th	**St. BARTHOLOMEW, Ap. & M.**	10 0	4 35
5	F	*Milverton*, and *Morelidge*, Somerſetſh.	10 30	5 29
6	S	*Carliſle*, Cumb. *Huntingdon.*	11 6	6 19
7	A	**14 Sunday after Trinity.**	11 48	7 8
8	M	S. Au. B. of Hip. C. D. *Ripley*, York.	Morn.	8 1
9	Tu	Beheading of John Bap.	0 37	8 50
0	W	*Barnham*, Suffolk, *for Sheep and Lambs*	1 33	9 40
1	Th	Day 13 hours and above half long.	2 34	10 28

D	☉ Riſes	☉ Sets	♄ Riſes	♃ Sets	♂ Sets	♀ Riſes	☿ Sets	Cl. bef. ☉
1	4 20	7 40	8 A 30	11 A 51	9 A 25	1 M 7	8 A 3	5 49″
6	4 27	7 32	8 10	11 32	9 11	1 11	8 4	5 23
1	4 35	7 24	7 50	11 13	8 57	1 18	8 0	4 44
6	4 44	7 15	7 32	10 55	8 44	1 27	7 54	3 52
1	4 53	7 6	Sets	10 36	8 30	1 38	7 45	2 44
6	5 2	6 57	4 M 49	10 19	8 17	1 50	7 35	1 27

SEPTEMBER hath xxx Days.

M D	☉ Decl. North.	
1	7°	0′
6	6	25
11	4	32
16	2	36
21	0	40
26	1 S	18

		Day at
New Moon	the 2d	53 min. paſt 2 Aftern.
Firſt Quarter	the 10th	4 min. paſt 3 Aftern.
Full Moon	the 2th	13 min. paſt 8 Morn.
Laſt Quarter	the 27th	46 min. paſt 3 Morn.

☉ in ♎ 22 D. 16 h. 4 m. App. Time

1	F	Giles, Abbot & Conf. *North-moor*, Wilt	3 M 19	11 M 15
2	S	*Richmond Rood*, North. Lond. Burnt.	☽ Sets	0 A 3
3	A	**15 Sunday after Trinity.**	7 A 24	0 43
4	M	*Bartholomew Fair*, London.	7 43	1 26
5	Tu	*Botley*, Hampſh. *Chipping Norton.*	8 2	2 10
6	W	*Folkingham*, Linc. *Snaith*, Yorkſh.	8 21	2 48
7	Th	**Dog Days end.** Enurchus. B.	8 43	3 33
8	F	Nativ. of the B.V.M. *Wirkſworth*, Derb.	9 6	4 17
9	S	*Bromſgrove*, Worc. *Devizes*, Wilts.	9 35	5 6
10	A	**16 Sunday after Trinity.**	10 13	5 56
11	M	*Tallowdown*, Dorſetſhire.	11 0	6 53
12	Tu	*Brentford*, Mid. *Whitehaven*, Cum.	11 59	7 52
13	W	*Tiddeſwell*, Derb. Will. Beech.	Morn.	8 52
14	Th	Holy Croſs Day. *Woburn*, Bedf.	1 10	9 54
15	F	Days 12 hours and quarter long.	2 31	10 54
16	S	*Newcaſtle*, and *Walſall*, Staff.	2 55	11 52
17	A	**17 Sunday after Trinity.**	☽ Riſes	Morn.
18	M	*Southwark*, *Shirbitch*, Camb.	7 A 17	0 48
19	Tu	*Carliſle*, Cum. *Northampton.*	7 42	1 42
20	W	Ember Week. *Devizes*, (Faſt..	8 8	2 33
21	Th	**St. MATTHEW, Ap. & Ev.**	8 38	3 29
22	F	*Allchurch*, Worceſt.	9 12	4 21
23	S	*Halkin*, Wilts. *Paincaſtle*, Radnor.	9 52	5 12
24	A	**18 Sunday after Trinity.**	10 41	6 2
25	M	*Cheſterfield*, Derb. *Denbigh*,	11 35	6 5
26	Tu	S. Cyprian, Archb. of Carth. & Mar	Morn.	7 4
27	W	*Derby*, laſts three Days. *Jer. Roe.*	0 36	8 3
28	Th	*Glouceſter*. *Tuxford*, Nottinghamſh.	1 40	9 2
29	F	**St. MICHAEL and all Angels.**	2 45	10
30	S	S Jer. Pr. Conf. & Doct. *Wrexham*, Denb	3 49	10 5

M.D.	☉ Riſes	☉ Sets	♄ Sets	♃ Sets	♂ Sets	♀ Riſes	☿ Sets	Cl. aft. ☉
1	5 14	6 45	4 M 24	9 A 59	8 A 1	2 M 7	7 A 22	0′ 19
6	5 23	6 36	4 49	9 42	7 49	2 22	7 8	1 55
11	5 43	6 16	3 45	9 23	7 36	2 37	6 55	3 35
16	5 53	6 6	3 26	9 9	7 25	2 53	6 39	5 21
21	6 0	6 0	3 5	8 53	7 14	3 9	6 23	7 6
26	6 4	5 54	2 45	8 37	7 2	3 27	6 4	8 47

OCTOBER hath XXXI Days.

New Moon the 2d } Day at { 42 min. paſt 7 Morn.
irſt Quarter the 10th } Day at { 2 in the Morning.
Full Moon 16th } Day at { 8 min. paſt 5 at Night.
aſt Quarter the 23d } Day at { 22 min. paſt 8 at Night.

M D	☉ Decl. South	
1	3°	15′
6	5	11
11	7	6
16	8	58
21	10	47
26	12	32

1	A	19 Sunday after Trinity.	4 M 56	11 M 34
2	M	*Dover*, Kent. *Northallerton*, Yorkſh.	☽ Sets	0 A 17
3	Tu	*Aberforth*, Yorkſh. *Woodſtock*, Ox.	6 A 36	0 59
4	W	*Penkridge*, Staffordſhire.	6 57	1 41
5	Th	*Llanvilling*, Mont. *Lamport*, Som.	7 19	2 24
6	F	Faith, Virgin and Mart. *Hull*, Yorkſh.	7 46	3 12
7	S	*Alfreton*, D. *for Horſes, Foals, Cheeſe*, &c.	8 29	4 2
8	A	20 Sunday after Trinity.	9 2	4 55
9	M	S. Denys Areop. B. and M.	9 55	5 52
10	Tu	Old Mich. D. *Birmingham*, War.	11 0	6 50
11	W	*Lancaſter*. *Leiceſter*. St. *Albans*,	Morn.	7 50
12	Th	*Banbury*, Oxf. *Saliſbury*, Wilts.	0 14	8 47
13	F	Tranſl. of K. Ed. Conf. *Devizes*, Wilts.	1 36	9 46
14	S	*Buttonmoor*, Shrop. *Workſop*, Notting.	3 0	10 42
15	A	21 Sunday after Trinity.	4 23	11 36
16	M	*Boſworth*, Leic. *Hay*, Brecknockſh.	☽ Riſes	Morn.
17	Tu	Etheldred. Virg. *Sheffield*, Yorkſh.	6 A 14	0 27
18	W	St. LUKE the Evang. *Radnor*.	6 41	1 19
19	Th	*Abberford*. *Yarm*, Yorkſh. *Oxford*.	7 14	2 11
20	F	*Aſhborn*, Derb. *Blythe*, Nott. *Hereford*.	7 52	3 8
21	S	(K. GEO. II. crowned 22, 1727.)	8 37	4 1
22	A	22 Sunday after Trinity.	9 31	4 53
23	M	*Aberfraw*, Angl. *Ripley*, Derb.	10 32	5 44
24	Tu	*Stockport*, Ch. *Windſor*, Berkſh.	11 35	6 35
25	W	Criſpin, Mart. *Charing*, Kent.	Morn.	7 23
26	Th	*Bromyard*, Heref. *Grantham*, Linc.	0 40	8 9
27	F	*Affington*, Devonſhire, (Faſt.	1 46	8 53
28	S	St. SIMON & JUDE, A. & M.	2 51	9 37
29	A	23 Sunday after Trinity.	3 55	10 19
30	M	*Banbury*, Oxf *Ely*, Camb.	5 3	11 0
31	Tu	*Bridgenorth*, Shropſhire. (Faſt.	6 10	11 44

M D	☉ Riſes	☉ Sets	♄ Sets	♃ Sets	♂ Sets	♀ Riſes	☿ Sets	Cl. aft. ☉
1	6h 12′	5h 47	2 M 27	8 A 22	6 A 52	3 M 44	5 A 43	10′ 26″
6	6 22	5 37	2 7	8 6	6 41	4 0	Riſes	11 55
11	6 32	5 27	1 47	7 50	6 31	4 17	5 M 34	13 15
16	6 42	9 17	1 27	7 35	6 20	4 33	5 3	14 24
21	6 51	5 8	1 8	7 20	6 11	4 50	4 59	15 20
26	7 1	4 58	0 49	7 4	6 2	5 6	13	15 54

NOVEMBER hath xxx Days.

New Moon the 1ſt	Day at	27 min. before 1 Morn.
Firſt Quarter the 8th		18 min. paſt 11 Forenoon.
Full Moon the 15th		49 min. paſt 3 Morn.
Laſt Quarter the 22d		9 min. paſt 4 Afternoon.
New Moon the 30th		34 min. paſt 4 Aftern.

M D	☉ Decl. South.	
1	14°	31
6	16	5
11	17	35
16	18	50
21	20	0
26	20	50

1	W	All Saints Day. *Newark.*	☽ Sets	0 A 25
2	Th	Princeſs Or. b. 1709. All Souls.	5 A 53	1 11
3	F	On the Morrow of all Souls.	6 24	2 1
4	S	*Appleſhaw*, Hants.	7 4	2 53
5	A	19 Sunday after Trin. Powder Plot.	7 54	3 4
6	M	Term begins. Leonard, Conf.	8 53	4 45
7	Tu	Prince Henry Fred. born 1745.	10 2	5 4
8	W	*Colcheſter*, Eſſex. *Hertford.*	11 19	6 42
9	Th	*Darlington*, Durh. *Stamford*, Linc.	Morn.	7 33
10	F	**K. Geo. II. bo. 1683.** *Rocheſter.*	0 39	8 2
11	S	S. Martin, Biſh. & Conf. *Lenton*, 2 Ret.	2 0	9 24
12	A	25 Sunday after Trinity.	3 23	10 17
13	M	Britius, Biſhop. *Huntingdon*. Her.	4 46	11 8
14	Tu	*Brecknock, and five Days following.*	6 8	11 57
15	W	Machutus, Biſh. *Andover.*	☽ Riſes	Morn.
16	Th	*Andover*, Hampſh. *Giſborough*, Yor.	5 A 44	0 52
17	F	Hugh, Biſh. of Linc.	6 25	1 45
18	S	In eight Days of Saint Martin.	7 15	2 41
19	A	26 Sunday after Trinity.	8 14	3 36
20	M	Edmund, King & M. *Lyng*, Norf.	9 18	4 32
21	Tu	*Garſtang*, Lanc. *Lamport*, [illegible]om.	10 22	5 17
22	W	Cecilia, Virg. & Mart. *Dover.*	11 28	6 3
23	Th	S. Clem. 1, B. of R. & M.	Morn.	6 46
24	F	*Aſhamſtead*, Berk. *Hide*, Eſſex.	0 33	7 32
25	S	Prince Will. Henry bo. 1743.	1 39	8 12
26	A	27 Sunday after Trinity.	2 46	8 54
27	M	Term ends the 28.	3 52	9 35
28	Tu	*Sheffield*, Yorkſhire. Tho. Hare.	4 58	10 16
29	W	(St. Andrew, Ap. & M. the 30th.	6 8	11 4
30	Th	Her Royal High. the Prs. of W. b. 1719.	☽ Sets	11 53

M D	☉ Riſes	☉ Sets	♄ Sets	♃ Sets	♂ Sets.	♀ Riſes	☿ Riſes	Cl. aft. ☉
1	7h 12′	4h 47	0 M 2	6 A 46	5 A 51	5 M 26	5 M 43	16′ 14″
6	7 21	4 38	0 6	6 30	5 42	5 42	6 9	16 8
11	7 29	4 30	11 A 42	6 14	5 34	5 58	6 37	15 43
16	7 37	4 22	11 23	5 57	5 26	6 13	7 4	14 54
21	7 45	4 15	11 7	5 40	5 19	6 28	Sets	13 45
26	7 51	4 9	10 42	5 22	5 13	6 43	4 A 4	12 18

A Compendious TABLE of INTEREST,

Shewing the Intereſt of any Sum of Money, from a Million to a Pound; for any Number of Days, at any Rate of Intereſt.

N°.	l.	s.	d.	q.		N°.	l.	s.	d.	q.	
1000000—	2739	14	6	0	,99	1000—	2	14	9	2	,14
900000—	2465	15	0	3	,29	900—	2	9	3	3	,12
800000—	2191	15	7	1	,59	800—	2	3	10	0	,11
700000—	1917	16	1	3	,89	700—	1	18	4	1	,10
600000—	1643	16	8	2	,19	600—	1	12	10	2	,80
500000—	1369	17	3	0	,49	500—	1	7	5	3	,70
400000—	1095	17	9	2	,79	400—	1	1	11	0	,50
300000—	821	18	4	1	,09	300—	0	16	5	1	,40
200000—	547	18	10	3	,40	200—	0	10	11	2	,30
100000—	273	19	5	1	,70	100—	0	5	5	3	,01
90000—	246	11	6	0	,32	90—	0	4	11	0	,71
80000—	219	3	6	0	,96	80—	0	4	4	2	,41
70000—	191	15	7	1	,59	70—	0	3	10	0	,11
60000—	164	7	8	0	,22	60—	0	3	3	1	,81
50000—	136	19	8	2	,85	50—	0	2	8	3	,51
40000—	109	11	9	1	,48	40—	0	2	2	1	,21
30000—	84	3	10	0	,11	30—	0	1	7	0	,90
20000—	54	15	10	2	,74	20—	0	1	1	0	,60
10000—	27	7	11	1	,37	10—	0	0	6	2	,30
9000—	24	13	1	3	,23	9—	0	0	5	3	,67
8000—	21	18	4	1	,10	8—	0	0	5	1	,40
7000—	19	3	6	2	,96	7—	0	0	4	2	,41
6000—	16	8	9	0	,82	6—	0	0	3	3	,76
5000—	13	13	11	2	,58	5—	0	0	3	1	,15
4000—	10	19	2	0	,55	4—	0	0	2	2	,52
3000—	8	4	4	2	,41	3—	0	0	1	3	,80
2000—	5	9	7	0	,27	2—	0	0	1	1	,26
1000—	2	14	9	2	,14	1—	0	0	0	2	,63

RULE.

Multiply the Sum by the Number of Days; and that Product by the Rate per Cent. Then cut off the two laſt Figures to the Right Hand, and the reſt you muſt find in the Table.

Example, What is the Intereſt of 100 l. for 365 Days at 5 per Cent.

N°. of Days 365
multiply by 100
Product 36500
multiply by 5 Rate p. Cent.
1825100

Then in the Table
againſt 1000 is 2 14 9 2 ,14
800 2 3 10 0 ,11
20 0 1 1 0 ,60
5 0 0 3 1 ,15
Anſw. 5 0 00 ,00

The Eclipses, 1758.

By Mr. *John Thorpe*, Schoolmaſter at *Woodborough*, from *Manuſcript* and alſo from Mr. *Street's* Tables.

OF ſix Eclipſes that will happen this Year, only one will be viſible in *England*. They happen as follows, *viz.*

The *firſt* is a ſmall Eclipſe of the *Sun*, on the 9th of *January*, about a quarter paſt 6 at Night. *Inviſible*.

The *ſecond*, is of the *Moon*, on *January* the 24th in the Morning, total and (part) viſible; the Calculation of which for London, take as follows.

	Manuſcript Tab				*Street's* Tables.			
	d.	h.	′	″	d.	h.	′	″
Equal Time of the Orbit ☊, *January*	23.	18.	40.	46.	23.	18.	30.	16.
Equation of Time add			12.	45.			12.	45.
Apparent Time of the Orbit ☊	23.	18.	53.	31.	23.	18.	43.	01.
	S.	o.	′	″	S.	o.	′	″
Mean Anomaly of ☉	6.	24.	46.	10.	6.	25.	23.	57.
☽	11.	18.	50.	5.	11.	14.	0.	23.
True Place of ☉ —	10.	4.	20.	15.	10.	4.	17.	38.
☽ in her Orbit.	4.	4.	20.	15.	4.	4.	17.	38.
North Node ſubſtract —	4.	4.	11.	40.	4.	4.	8.	47.
Argument of Latitude —			8.	35.			8.	51.
Reduction ſubſtract —				2.				2.
Hourly Motion of ☽ from ☉ —			26.	40.			27.	8.
Whence the Time of Red. *add & ſub.*	d.	h.		5.	d.	h.		4.
Apparent Time of the Ecliptic ☊	23.	18.	53.	36.	23.	18.	43.	5.
Middle	23.	18.	53.	26.	23.	18.	42.	56.
Horizontal Parallax of the ☽			54.	12.			53.	6.
☉ add				10.				15.
Their Sum —			54.	22.			53.	21.
Semidiameter of ☉ ſub. —			16.	22.			16.	11.
Rem. the Semidiam. of ⊖ Shadow			38.	00.			37.	10.
Semidiameter of ☽ add —			14.	51.			14.	22.
Sum of Semid. of ☽ and Shadow			52.	51.			51.	32.
Lat. of ☽ North aſcending; ſub. —				45.				46.
Rem. the Part deficient —			52.	6.			50.	46.
As Semid. of ☽ : 6 Digits : : Part def. : to Digits Ec.			21.	3.			21.	12

For the Scruples of Incidence, &c. I ſhall only inſtance in one of them, which ſhall be *Street's*, the other being obtained after the ſame Manner, thus,

Sum of the Semidiam. of ☽ and ⊖ in Seconds 3192″.
The ☽ Latitude add & ſub. 46.
add 3.510277 Log. of the Sum 3238
3.497759 Difference 3146
Sum 7.008036
Half 3.504018 Log. of the Scruples of Incidence 3192.

For the Time of Incidence, thus

	h.	′.	″.	h.	′.	″.
As hourly Motion of ☽ from ☉ : 6 : : Scruples of Incidence : Time.	1.	58.	52	1.	57.	38.

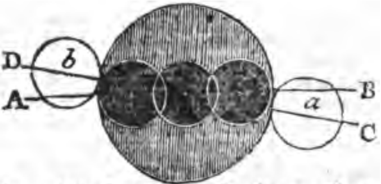
The Time of Incidence being ſub. and added from and to the Middle, gives the Time of Beginning and End of the general Eclipſe.

The Scruples and Time of ½ total Darkneſs may be obtained after the ſame Manner, only inſtead of the Sum of the Semidiameter of ☽ and ⊖ Shadow, take their *Diff.* and the Time of ½ total Darkneſs will be found. 52′ 3″—50′ 23″.

From the foregoing Calculation may be deduced

	h.	′.	″.	h.	′.	″.
The apparent Time of the beginning at *London*, 1758, *January* 24 Morn.	4.	54.	34.	4.	45.	19.
Beginning of total Darkneſs ——	6.	1.	23.	5.	52.	34.
Greateſt Obſcuration ——	6.	53.	26.	6.	42.	57.
Ecliptic ☍ —— —	6.	53.	36.	6.	43.	5.
End of total Darkneſs —	7.	45.	29.	7.	33.	20.
End of the Eclipſe —	8.	52.	18.	8.	40.	35.
Whole Duration — —	3.	57.	44.	3.	55.	16.
Digits eclipſed — —	21°.	3.		21°.	12.	

Note, The *Moon* ſets that Morning about 37 min. paſt 7; which will be about the Time it begins to emerge out of total Darkneſs.



In this *Type*, The large dark Circle repreſents a Section of the Earth's Shadow. AB, a Portion of the Ecliptic; CD, is the *Moon's* Way; *a* the Centre of the *Moon* at the Beginning, *b*, at the End, *&c.*

The third *Eclipſe* is of the *Sun*, on the 8th of *February*, at 3 quarters paſt Four in the Morning.

The fourth is alſo a *ſolar* Eclipſe, on *July* 5, about 45 min. paſt 8 in the Morning; nearly 4 Hours after Sun-riſing; yet the Moon having great South Latitude, which being increaſed by her Parallax, will depreſs her below the Sun's Limb, and thereby render the Eclipſe inviſible to us in *England*; but may be ſeen in the more ſouthern Parts of the Earth, where the Parallax is ſmall, about the *Levant*, and near the *Tropic*.

The 5th is a *Lunar* Eclipſe on *July* 20th, 3 Quarters paſt 4, in the Afternoon, inviſible.

The 6th and laſt is of the *Sun*, on the 30th of *December*, at half an Hour paſt 7, in the Morning. inviſible.

Careleſs Jack of *Cambridge*, has alſo favoured us with the Calculation of the ſame Eclipſe, from Mr. *Flamſtead's* and Mr. *Dunthorn's* Tables.

	Flamſtead.				*Dunthorn.*			
	D.	h.	'.	".	D.	h.	'.	".
The equal Time of the true ☍ of Sun and Moon, is *January*	23.	18.	51.	26.	23.	18.	33.	46.
At which Time	S.	0.			S.	0.		
The Sun's true Place	10.	4.	21.	44.	10.	4.	19.	57.
Annual Argument	5.	15.	30.	35.				
Moon's true Place in her Orbit	4.	4.	21.	44.	4.	4.	19.	59.
Her true hourly Motion			30.	20.			29.	48.
Sun's true hourly Motion			2.	23.			2.	23.
Hourly Motion of Moon from Sun			27.	47.			27.	25.
Argument of Latitude			6.	2.			8.	17.
Abſolute Equation of Days, ſub.			4.	57.			4.	51.
Apparent Time of Oppoſition in Orbit	23.	18.	46.	29.				
Time of Reduction, ſub.				3.				2.
The apparent Time of ☍ in Ecliptic	23.	18.	46.	26.	4.	4.	19.	57.
Moon's horizontal Parallax			55.	2.			54.	2.
Sun's Ditto				10.				10.
Sum of the horizontal Parallaxes			55.	12.			54.	12.
Semidiameter of Sun			16.	21			16.	23.
Semidiameter of Earth's Shadow			38.	51.			37.	49.
		Increaſed					38.	39.
Moon's Semidiameter			14.	56.			14.	48.
Semidiameter of ☽ and Shadow			53.	47.			53.	27.
Moon's Latitude North				34.				46.
The ∠ of the Way of the ☽ and ☉ with a Circle of Lat.						84.	14.	
Neareſt approach of the Centers of ☽ and Shadow								44.
Parts deficient			53.	13.			52.	43.
Digits eclipſed		21.	22.	54.		21.	22.	18.
The Time between the *true & mean* Ecl.								6.
Equal Time of the greateſt Obſcuration					23.	18.	33.	40.
Eq. apparent T. of the greateſt Obſcuration	23.	18.	46.	32.	23.	18.	38.	31.
Motion of Semiduration			53.	35.			53.	26.
Time of Semiduration		1.	55.	28.		1.	57.	37.
Mot. of Semiduration in tot. Darkneſs			23.	53.			23.	50.
T. of Semiduration			51.	25.			52.	26.
The Beginning of the Eclipſe	D.	h.	'.	".	D.	h.	'.	".
Morning	24.	4.	51.	3.	24.	4.	40.	54.
The Beginning of total Darkneſs	24.	5.	54.	51.	24.	5.	46.	5.
Middle of the eclipſe	24.	6.	46.	26.	24.	6.	38.	31.
End of total Darkneſs.	24.	7.	38.	1.	24.	7.	30.	57
End of the Eclipſe	24.	8.	41.	49.	24.	8.	36.	8.
Duration in total Darkneſs		1.	42.	10.		1.	44.	52
Total Duration		3.	50.	46.		3.	55.	14

We received the following from Mr. *Tho. Allen* of *Spalding*,

By examining the ecliptic Boundaries, *&c.* I find only one viſible Eclipſe in the Year 1758, and that a Lunar one; the Time, *&c.* whereof I have carefully computed by Dr. *Halley's* Tables, for the Meridian of the royal Obſervatory at *Greenwich*, as follows.

	D.	h.	′.	″.
Beginning of the Eclipſe	24.	4.	30.	9.
Beginning of total Darkneſs		5.	35.	26.
Middle		6.	26.	48.
Ecliptic Oppoſition		6.	26.	58.
End of total Darkneſs		7.	18.	10.
End of the Eclipſe		8.	23.	27
Duration of total Darkneſs		1.	42.	44.
Duration of the Eclipſe		3.	53.	18.
Digits eclipſed		21°.	7.	

In the Morning at the ROYAL OBSERVATORY at *Greenwich*. Apparent Time.

N. B. Mr. *Waddington* obſerves that this Eclipſe will be viſible to ⅔ of the Earth's Surface.

Mr. *Sam. Towndrow* of *Cheſterfield*, in *Derbyſhire*, ſent us the following Calculation from *Leadbetter's* Tables; for *Jan.* 23.

	beg.	mid.	end.	beg.tot.Dark	end totDark
London	16h 31′ 50″	18h 31′ 4″	20h 30′ 18″	17h 23′ 13″	19h 38′ 55″
New York	11 43 50	13 43 4	15 42 18	12 35 13	14 00 55
Gibraltar	16 6 50	18 6 4	20 5 18	16 58 13	19 14 55
Cheſterfield	16 22 50	18 22 4	20 21 18	17 14 13	19 25 55
Liſbon	15 54 50	17 54 4	19 53 18	16 46 13	19 1 55
Barbadoes	12 38 50	14 38 4	16 38 4	13 30 13	13 45 55

Durat. 3 58 28 Duration of total Dark. 2 15 42 Digits Ecl. 21°.25 3.

A Catalogue of all the Ænigmas hitherto publiſhed in the GENT'S DIARY.

1741.
1. HEMP, Richard Archibald.
2. The Year FORTY, William D.
3. TOBACCO-PIPE, Rich. Peat.
4. SEWING-NEEDLE, G———

1742.
(1) 5. A SHADOW, R. Ceſtrienſis.
(2) 6. An OYSTER, W. Durant.
(3) 7. ENDYMION, Abr. Lord.
(4) 8. INNOCENCE, R. Ceſtrienſis.
(5) 9. A SPIDER, Will. Chapple.
(6) 10. A PAIR OF SHOES, Ceſtrien.
(7) 11. SEWING-NEEDLE, J. Dewhurſt.

1743.
(1) 12. A WINDMILL, G. Redford
(2) 13. BUCKLES, Pſeudo-Strephon
(3) 14. FLATTERY, Mad Tom.
(4) 15. The TIDES, W. Aldridge.
(5) 16. A SPIDER, Sam. Bamfield.
(6) 17. A FABLE, Abraham Lord,
(7) 18. LOVE, William Wiraketh.

1744. SEWING-NEEDLE, French.
(1) 19. SILENCE, Will. Chapple.

1745.
(1) 20. A SPADE, Will. Chapple.
(2) 21. SEWING-NEEDLE, R. Hulſe
(3) 22. A DREAM, John Randles.
(4) 23. An ÆNIGMA, W. Wallhead.
(5) 24. Letter A, Sam. Bamfield.
(6) 25. A TOPP, James Hall.
(7) 26. A CHIMNEY, Rebecca May
(8) 27. A PLOUGH, W. Holliday.

1746.
(1) 28. A FRANK'D LETTER, W.C
(2) 29. A PEN, Rich. Whitehouſe
(3) 30. A DREAM, Sam. Bamfield
(4) 31. LOVE, Samuel Hammond.
(5) 32. ACE OF TRUMPS, J. Hall.
(6) 33. A WOMAN'S BUSK, R. Hulſe
(7) 34. A MAN'S BEARD, W. Mobbs
(8) 35. A FISH-HOOK, R. Matlock
(9) 36. SHOEMAKER'S LAST, J. Calvert.

1747.
(1) 37. The GOUT, Ralph Hulſe.
(2) 38. FLAX, Mama's Joye.
(3) 39. A GIMLET, James Hall.
(4) 40. A GUINEA, S. Hammond.
(5) 41. A CLOUD, Sam. Bamfield.
(6) 42. HEALTH, Anthony Moor.
(7) 43. GRINDINGSTONE, C. M.
(8) 44. DREDGING-BOX, W. Heaford

1748.
(1) 45. LIGHT, Sam. Bamfield.
(2) 46. YAWNING, Chagford Hill

(3) 47. NONSENSE, Anth. Moor.
(4) 48. GENT. DIARY, W. Heaford
(5) 49. NOTHING, Ralph Hulſe.
(6) 50. POVERTY, James Mayo.
(7) 51. GUNPOWDER, Ed. Laſhmere
1749.
(1) 52. SILENCE, S. Hammond.
(2) 53. An EYE, Sam. Bamfield.
(3) 54. A NETTLE, James Hall.
(4) 55. A DICTIONARY, W. Chapple
(5) 56. A KISS, William Dyke.
(6) 57. A MARRIED WOMAN, T. H.
(7) 58. RIVER TRENT, S. H.
(8) 59. A PEN, William Jepſon.
(9) 60. WEAVER's SHUTTLE, T. A
(10) 61. A SPIDER, A. Buttonhole,
1750.
(1) 62. BELLOWS, S. Hammond.
(2) 63. DARKNESS, Sam. Squib.
(3) 64. WEATHERCOCK, F. T. M,
(4) 65. MODESTY, Salarea.
(5) 66. CONTENT, Ralph Hulſe.
(6) 67. HOPE, Samuel Hammond.
(7) 68. An ARSE, Ned Fawſit.
1751.
(1) 69. NOISE, Thomas Peat.
(2) 70. The BRAIN, Mrs. P—n.
(3) 71. A CUSHION, Sam. Squib.
(4) 72. A SIEVE, S. Hammond.
(5) 73. PAPER, Philænigmata.
(6) 74. A CHAIR, S. Hammond.
(7) 75. A TOBACCO-PIPE, S. Squib
(8) 76. A SUN-DIAL, W. Whalhead.
1752.
(1) 77. NOSE, John Pickburn.
(2) 78. FEAR, Samuel Hammond.
(3) 79. HAT, Richard Peat.
(4) 80. HEART, Philænigmata.
(5) 81. NEEDLE, J. Woolley.
(6) 82. CORKSCREW, W. Heaford
1753.
(1) 83. HAPPINESS, Somebody.
(2) 84. A LOUSE, Sap-Scull.
(3) 85. LOVE, Tom. Faggott.
(4) 86. A BLANK, S. Hammond.
(5) 87. TEA, John Noorthouck.
(6) 88. LETHE, Robert Matlock.
1754.
(1) 89. A LIE, S. Hammond.
(2) 90. A KISS, John Dyke.
(3) 91. Letter O, W. Heaford.
(4) 92. SNUFFERS, D. Davis.
(5) 93. SIN, Andrew Wheldon.
(6) 94. A STANDISH, J. Noorthouck
(7) 95. Tittle-top I, D. Davis.
(8) 96. The GOUT, R. Matlock.
1755.
(1) 97. CRICKET-BALL, C. Maſon
(2) 98. A SHADOW, Joſ. Hartley.
(3) 99. TO-MORROW, Ant. Moor.
(4) 100. The TONGUE, J. N.
(5) 101. HOPE, Sam. Hammond.
(6) 102. Letter A, W. Davis.
(7) 103. THOUGHT, W. Davis.
(8) 104. An HOUR-GLASS, C. M.
(9) 105. A PERRIWIG, S. Bamfield
(10) 106. A THIMBLE, S. Hodgkin
1756.
(1) 107, Letter G, Tho. Pooke.
(2) 108. MAGGOT in a NUT, C. M.
(3) 109. A FIRESCREEN, Random J.
(4) 110. REASON, Tim. Drury.
(5) 111. ENVY, Sam. Hammond.
(6) 112. A PLAYER, Jac. Whitley
(7) 113. A LOUSE, Cha. Wildbore
(8) 114. SOPHISTRY, Ha. Tarratt.
1757.
(1) 115. A THEME, Random, Jun.
(2) 116. A BEARD, Tim. Drury.
(3) 117. No. THREE, J. Noorthouck
(4) 118. A TEAR, Ch. Underwood
(5) 119. The Word NO, J. Haycroft.
(6) 120. ALE, Random, Junior
(7) 121. BACK-GAMMON-TAB. CW
(8) 122. LIFE, a mongrel Cur.
(9) 123. A WALLNUT, J. Hall.
(10) 124. IGNORANCE, J. Pickburn.

ANSWERS to the QUESTIONS in the laſt Year's DIARY.

1. Queſtion (161) anſwered by Mr. *Will. Kingſton* of *Bath*.

Let $2s^2 = x + z$; $2d = x - z$ ∴ $x = s^2 + d$; and $z = s^2 - d$;

$2x^2-2z^2=8s^2d^2$. Then by the Problem we have $\overline{2x^2-2z^2}|^{\frac{1}{2}} \times \sqrt{x-z^2}+\overline{x+z}|^3=128\sqrt{8}\,s^6d^6+8s^6=a=2829323,6$ &c. And $\frac{a^3+z^3}{x+z}-\overline{\frac{x-z}{2}}|^2 \div \sqrt{\frac{x-z}{2}}=3d^3=b=28,637$. Whence $d^2=\overline{\frac{b}{3}}|^{\frac{2}{3}}=4,5$ and $s^2=\overline{\frac{a}{128\sqrt{8}\,d^6}+8}|^{\frac{1}{3}}=95$ Hence $s^2+d^2=x=w=14$ the Letter O; $s^2-d^2=z=5$ the Letter E.

Again $\overline{\frac{z-1}{2}}|^{y}-\overline{\frac{z-1}{2}}|^{y-1}+\overline{\frac{z-1}{2}}|^{y-5}+\overline{\frac{z-1}{2}}|^{y-9}=2184=c$; then by Logarithms we have $y-10\times L\frac{z-1}{2}=Lc-L\,\overline{\overline{\frac{z-1}{2}}|^{10}-\overline{\frac{z-1}{2}}|^{9}+\overline{\frac{z-1}{2}}|^{5}+\frac{z-1}{2}}$ ∴ $y=10=\frac{Lc-L\,\overline{\overline{\frac{z-1}{2}}|^{10}-\overline{\frac{z-1}{2}}|^{9}+\overline{\frac{z-1}{2}}|^{5}+\frac{z-1}{2}}}{L.\frac{z-1}{2}}=2$ ∴ $y=2+10=12$. the Letter M.

Now $\frac{v^6u^4-x^3u^2v^2-z^3xv^2u^2+y^4x^2u^2v^2}{uvx^2yz}=\frac{\overline{v^5u^3-x^3-z^3x+y^4x}\times uv}{x^2yz}=d=9913\frac{1043}{1680}$ ∴ $v^5u^3=dx^2zy+\overline{x^3+z^3x-y^4x}\times vu$; and $\frac{v^6u^5x^7y^2z}{uv^2x^7y^5z^6}=\frac{v^5u^3}{y^3z^5}=m=15\frac{1572791}{5400000}$ ∴ $v^5u^3=my^3z^5=dx^2zy+\overline{x^3+z^3x-y^4x}\times av$ from above. Hence $vu=\frac{my^3z^5-dx^2zy}{x^3+z^3x-y^4x}=119=n$ ∴ $=\frac{n}{v}$ ∴ $u^3=\frac{n^3}{v^3}$. This put for u^3 above gives $n^3v^2=my^3z^5$ ∴ $v=\sqrt{\frac{my^3z^5}{n^3}}=7$ the Letter G; and $u=\frac{n}{v}=17$ the Letter R. Therefore the Lady's Name is GROOME.

Mr. *William Smith* the Propoſer's Solution.

Put $m^2+n^2=x=w$, and $m^2-n^2=z$; then the two firſt Equations are $128\sqrt{8}\,m^6n^6+8m^6=2829323,6=a$, and $3n^3=28,637=b$; ∴ $n^2=\overline{\frac{b}{3}}|^{\frac{2}{3}}=4\frac{1}{2}$ and $m^2=\overline{\frac{a}{128\sqrt{8}\,n^6+8}}|^{\frac{1}{3}}=9\frac{1}{2}$. Whence by Subſtitution, $m^2+n^2=14=x=w$; and

$m^2 - n^2 = 5 = z$; hence by ſupplying the deficient Places with a ✻, the Name is ✻✻OO✻E. By the Nature of Logarithms, in the third Equation $y - 10 =$

$$\frac{L\dfrac{2184}{\overline{\frac{z-1}{2}}^{10} - \overline{\frac{z-1}{2}}^{7} + \overline{\frac{z-1}{2}}^{5} + \overline{\frac{z-1}{2}}}}{L.\frac{z-1}{2}} = 2;\ \because y = 12$$

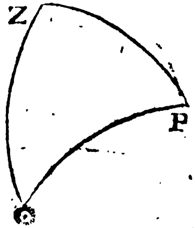
and the Name is ✻✻OOME. Let $\frac{m}{v}$ be $= u$; then the two laſt Equations become $\frac{v^2 m3 - \overline{x^2 - z^3 + v^4} \times wm}{wxyz} = 9913\frac{1043}{1680} = c$, and $\frac{v^2 m3}{y^3 z5} = 15\frac{1572791}{500000} = d$. Whence by Reduction: $v^2 m3 = cwxyz + \overline{x^2 + z^3 - y^4} \times wn = dy3\,z5$; and $m = \frac{dy^3 z5 - cwxyz}{\overline{x^2 + z^3 - y^4} \times w} = 119$. Conſequently $\frac{m}{v} = 17 = u$; and ELIZABETH GROOME is the Name; whence ſhe may be known; and the Encomium proved.

2. Queſtion (162) anſwered by Mr. *Will. Kingſton* of *Bath.*

He preſumes the Propoſer meant $x^y + y^x = 23401$. And $x^{1+y} + y^{1+x} = 124781$; then x and y, will be either 5 or 6; For $6^5 + 5^6 = 23401$; and $6^6 + 5^7 = 124781$; from whence $x^y = 15625$ may be either the Number of *Guineas* or *Moidores* and $y^x = 7776$, may be alſo the Number of *Moidores* or *Guineas*.

Meſſ. *Timothy Drury*, *Joſhua Holroyd*, *Matthew Johnſon*, *William Smith*, and others, ſent us Solutions to this; but the Method of *Trial* and *Error* being too tedious to inſert; wiſh Mr. *Goodhead the Propoſer*, the Happineſs of ſucceeding in his *Love*, and the Pleaſure of counting her *Gold* himſelf.

3. Queſtion (163) anſwered by Mr. *Rob. Waddington* of *Hull.*

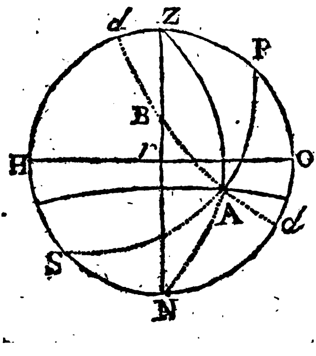


Let P, repreſent the North Pole, Z, the Zenith, ☉ the Sun's Place at Day Break; then the Side Z☉ = 108° = Q = Coſine. Let L and l, the Sine and Coſine of the Lat. D and d, the Sine and Coſine of the Sun's Decl. and a, the Sine of the Sun's Alt. m and n, the Sine and Coſine of the Hour from Noon = 135° = 9h (*per* a Theorem in *Thacker's* Miſcellanies) we have $DL \times dln = Q$; But ſince Q is the Coſine of an Angle greater than 90° its Sine is Negative, as alſo n, is negative. Therefore $DL = dln - Q$; alſo R 1 : L :: a : D ∴ $La = D$, and $\sqrt{1 - LL} = l$; alſo $\sqrt{1 - LLaa} = d$; which ſubſtituted in the above Equation gives $\sqrt{1 - LL} \times \sqrt{1 - LLaa} = \frac{Q \times aLL}{n}$, and by ſquaring both Sides $a^2 L^4 - a^2 L^2 - L^2 + 1 = \frac{a^2 L^4 \times 2aQL^2 \times Q^2}{n^2}$. By Reduction $L^4 - n^2 L^4 + n^2 L^2 \times \frac{2Q}{a} L^2 = \frac{n^2 - Q^2}{a^2}$; in Numbers, $L^4 + 6,7143 L^2 = 2,772$. Solved, $L^2 = 0,39$ and $L = 0,6245$ whoſe Log. is 9,7955324 the Sine of 38° 38′ 44″. the Lat and $La = 9,5281190$ the Sine of 19° 43′ 3″ the Sun's Declination North; wherefore the Time is *May* 18. and the Place in the Latitude of *Liſbon*.

The ſame anſwered by Mr. *Tho. Hare* of *Sheffield*.

Let $a =$ Sine of 18° the Sun's Depreſſion at Day break, $m = \sqrt{\frac{1}{2}} =$ Sine of 45° the Hour from Midnight; $b =$ Sine of 32° 42′ the Sun's Altitude when due Eaſt; $x =$ Sine, $y =$ Coſine of the Latitude; and $v =$ Sine, $z =$ Coſine of the Sun's Declination. Then from *Spherics* ariſe theſe two Equations $myz - vx = a$ And $v = bx$. By 47 *Euclid* 1ſt, $z = \sqrt{1 - b^2x^2}$ and $y = \sqrt{1 - x^2}$ and by ſubſtituting the reſpective Values of v, z and y, in the firſt Equation, we ſhall after due Reduction have $x^4 + \frac{4h + b^2 + 1}{b^4} x^2 = \frac{1 - a^2}{b^4}$ which ſolved gives $x =$ 624634 = Sine of 38° 39′ 20″ the Latitude; whence the Sun's Declination 19° 43′ 18″ which anſwers to *May* 18.

The ſame anſwered by Mr. *Cha. Maſon*, Junior, of *Sapperton*, the Propoſer.

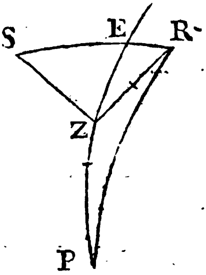


Here is given $\begin{cases} ZA = 108°; \text{Co.} \\ = a < ZPA = \\ 135°. \text{ Coſine} \\ = m, \sqrt{B} = \\ 32° 42′. \text{ Sine } n, \end{cases}$ and let $x =$ the Sine and $y =$ the Coſine of the Latitude, $v =$ the Sine, and $z =$ the Coſine of the Sun's Declination: Then (by *Sphericks*) $mzy - vx = a$; and as x : 1 (= Rad.) :: v : $\frac{v}{x} = n$ ∴ $v = nx$; and *per* (47. *e*. 1.) $z = \sqrt{1 - v^2}$;

and $y = \sqrt{1-x^2}$, which wrote for z and y, we have $\sqrt{m^2 - m^2v^2 - m^2x^2 + m^2vx} - vx = a \therefore$ by Subſtitution $\sqrt{m^2 - n^2m^2x^2 - m^2x^2 + n^2m^2x^4} - nx = a \therefore m^2 - n^2m^2x^2 - m^2x^2 + n^2m^2x^4 = a^2 + 2anx^2 + n^2x^4 \therefore n^2m^2x^2 + m^2x^2 + 2anx^2 + n^2x^4 - n^2m^2x^4 = m^2 - a^2$. Let b and d expreſs the Coefficients of x^4 and x^2, and then we have $bx^4 + dx^2 = m^2 - a^2 \therefore x = \sqrt{\sqrt{\frac{m^2-a^2}{b} + \frac{d^2}{4b^2}} - \frac{d}{2b}} = ,6246345 =$ the Sine of 38° 39′ 20″ the Latitude N. Hence the Sun's Declination 19° 43′ 18″ anſwering the 18th of *May*.

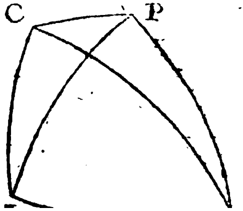
4. Queſtion (164) anſwered by Mr. *Thomas Moſs*.

The Time which the Ship is in Motion is 27 Days, 19 Hours, $\left(=\frac{667 \times 4}{24}\right)$ and when ſhe has ſailed 2668 Miles, and they then perceive the Sun juſt riſing, ſhe will be in the Latitude of 28° 30′ Seven o'Clock *May* 1ſt, at which Time and Place the Sun's Altitude is eaſily obtained, and and alſo his Azimuth from the South. Now let P repreſent the Pole, Z the Zenith of the Place the Ship departed from; and let PZE be the Meridian thereof: Moreover let ZS be the Complement of the Sun's Altitude determined as above; RZ = 44° 28′ (the given Diſtance ſailed on the Arch of a great Circle) RS = 90°. Then in the Triangle RSZ are given all the Sides, whence (per *Sphericks*) the Angle RZS may be found, and conſequently the Sun's Azimuth at Seven o'Clock (= RZS — SZE); again, in the Triangle RPZ are given RZ (44° 28′) ZP the Complement of the given Latitude, and the Angle RZP; whence the Side PR, the required Latitude of the Place where the Ship arrived may be found.



The ſame anſwered by Mr. *Abr. Botham*, the Propoſer.

Let P be the Pole, L the Place from whence they ſet ſail, C the Place arrived to; and R be the Place in the Horizon the Sun riſes at: Now in 667 Hours the Sun will have 15° 4′ Declination its Complement PR = 74° 56′ PL the Com. Lat. of the Place L = 61° 39′.



the Sun in 667 Hours will want 5 Hours of coming to the Meridian PL, therefore <LPR = 75° LC is the Diſtance gone over = 2268 Miles or 44° 28′. And ſince the Sun is in the Horizon when riſing LR = 90°. Therefore in the Triangle LPR with two Legs and an Angle the Side LR is found = 69° 54′ and < PLR = 83° 20′. In the △ LCR we have now the three Sides, whence the <CLR = 111° 53′. Now CLR —PLR = PLC = 28° 33′. Therefore in the △ PLC is given PL, CL and CLP, from hence the Side CP is found = 28° 13′ the Com. Lat. of the Place required.

5. Queſtion (165) anſwered by Mr. *Thomas Moſs*.

It is determined by the Writers on Fluxions, that the Solidity of a *ſemicubical* Paraboloid is $\frac{3}{7}$ of its circumſcribing Cylinder; hence we have $3bxy^2 = 7c$ (b being $= 3,1416$ &c. $=$ the given Content of the Bowl in Inches.) Now; the given Equation being $ax^2 = y^3$, we have $x^2 = \frac{y^3}{a}$ and ∵ $x = \frac{y^{\frac{3}{2}}}{a^{\frac{1}{2}}}$; ∵ $\dot{x} = \frac{3}{2} \times \frac{y^{\frac{1}{2}}\dot{y}}{a^{\frac{1}{2}}}$. And $\dot{x}\dot{x} = \frac{9y\dot{y}^2}{4a}$; but, $2by \times \sqrt{\dot{x}\dot{x} + \dot{y}\dot{y}}$ is the Fluxion of the Surface; or, $2by \times \sqrt{\frac{9y\dot{y}^2}{4a} + \dot{y}^2}$ $(= 2by\dot{y} \times \overline{1 + \frac{9y}{4a}}|^{\frac{1}{2}})$ whoſe Fluent is $\frac{y - 8a}{27} \times \frac{16ba}{45} \times \overline{\frac{9y}{4a} + 1}|^{\frac{3}{2}}$; which being properly corrected, becomes $\frac{16bay}{45} - \frac{128ba^2}{45 \times 27} \times \overline{\frac{9y}{4a} + 1}|^{\frac{3}{2}} + \frac{128ba^2}{1215}$ for the *Convex* Surface; but, from the above Equation $x^2 = \frac{49c^2}{9b^2y^2}$; and, by the Property of the Curve $x^2 = \frac{y^3}{a}$ ∵ $49c^2a = 9b^2y^3$ ∵ $a = \frac{9b^2y^5}{49c^2}$ which being ſubſtituted for a, in the Expreſſion for the convex Surface we have

$$\frac{16by}{45} \times \frac{9b^2y^5}{49c^2} - \frac{128b}{1215} \times \frac{81b^4y^{10}}{\overline{49c^2}|^2} \times \overline{\frac{9y}{\frac{36b^2y^5}{49c^2}} + 1}|^{\frac{3}{2}} + \frac{128b}{1215} \times \frac{9b^2y^5}{49c^2},$$

which by the Queſtion is a *Minimum*; or

$$\overline{\frac{144b^3y^5}{45 \times 49c^2} - \frac{10368b^5y^{10}}{1215 \times \overline{49c^2}|^2}} \times \overline{\frac{441c^2 - 36b^2y^4}{36b^2y^4}}|^{\frac{3}{2}} + \overline{\frac{144b^3y^5}{45 \times 49c^2} - \frac{10368b^5y^{10}}{1215 \times \overline{49c^2}|^2}} \times \overline{\frac{441c^2}{36b^2y^4} + 1}|^{\frac{3}{2}} + \frac{128b}{1215} \times \frac{81b^4y^{10}}{\overline{49c^2}|^2}$$

a *Minimum*. Now call $\frac{144b^3}{45\times49c^2}$, d; $\frac{10368\,bs}{\overline{1215\times49c^2}|}$ f; $\frac{441c^2}{36b^2}$ m; and $\frac{128b\times\overline{81b^4}}{\overline{1215\times49c^2}|^2}$, n; then the Expreſſion for the *Minimum* becomes $\frac{d-fy^5}{y}\times\overline{m+y^4}|^{\frac{3}{2}}+ny^{10}$, which being put into *Flux*. &c. the Value of y may be known, and conſequently that of x.

The Method of Solution for the latter Part of the Queſtion (*or rather the ſecond Queſtion, becauſe the Data's have no Connexion with each other*) will be as follows,

Firſt then, the given Equation will be $\overline{x^2+x^3+x^4}\times\frac{3x}{2}=\frac{3}{p}\times x\rceil x^{x}$ (p being $=,7854$) whence this Equation in Log ſtands thus $\text{L}\,\overline{x^2+x^3+x^4}+\text{L}x\times\frac{3x}{2}=\text{L}\frac{3}{p}+x\times\text{L}x\rceil^{x}$ ∵ L. Log. $\overline{x^2\,x^3\,x^4}+\text{L}.\frac{3x}{2}+\text{L}.\ \text{L}x=\text{L}.\ \text{L}\frac{3}{p}+\text{L}x+x\times\text{L}x$; whence, by the Method of *Tryal* and *Error*, and a common Table of Log. the Value of x may be obtained, and conſequently $\bar{x}x\rceil^{x}$ the required Content of the Glaſs.

Mr. *Will. Smith*, ſent us the following Solution.

Put $a=\frac{1}{12}$; $s=115,5$ cubic Inches, the Content of the Bowl; $c=\frac{3,1416\times3}{5}=1,88496$, and $y=$ greateſt Semiordinate within; then (from p. 209. of Mr. *Emerſon's* Fluxions) $\frac{s}{cy^2}=$ correſponding Abſciſſæ, ∵ $\frac{s+cay^2}{cy^2}$ and $y+a$ are the Abſciſſa and Semiordinate including the Silver; whence $\frac{s+cay^2}{y^2}\times\overline{y+a}|^2-s=$ Solidity of the Silver, a *Minimum*; and by making y flow, we have $2cay^5\dot{y}+2ca^2y^4\dot{y}-2say^2\dot{y}-2sa^2y\dot{y}=0$. Reduced $y^4+ay^3-\frac{s}{c}y=\frac{sa}{c}$. Solv'd $y=3{,}942392994$ Inches; whence $\frac{s}{cy^2}=14{,}007621$, the greateſt Abſciſſæ within, and 7,980157 cubic Inches, or (*per Ward's* Math. p. 121) 3*lb.* 8*oz.* 6*pw.* 21,0624*gr.* of ſtandard Silver is the Quantity required.

It is ſufficiently evident, that $x\rceil\bar{x}^{x}$, admits of two Caſes, as follows, Caſe 1. Put d (=,7854 × $\frac{1}{3}$) = ,2618; then by the Queſt. and Stereometry, $\overline{x^{\overline{x+1}}+x^{2}+x^{2x}}\times d\,x^{\frac{3x}{2}}=x^{x)x}=x^{x^{2}}$; whence Log. Log. $\overline{x^{x+1}+x^{2}+x^{2x}}$ + Log. d + Log. $x\times\frac{3x}{2}$ — Log. Log. x — Log. $x\times 2=0$. Aſſume x = 1, 1, whoſe Log = 0,0413927; and the Equation gives + 0,00210107: Taking x = 1,096, Log. = 0,398106, we get 0,03807369: Whence $\frac{0{,}0413927-0{,}0398106\times0{,}03807369}{0{,}00210107+0{,}03807369}=0{,}0014993$ to which + 0,0398106 = 0,0413099 = Log. of 1,09979 = x; with which the Equation gives + 0,0002475. Taking x = 1,09975 whoſe Log. = 0,0412939; we get 0,0001094: And operating as above, we have 0,0000049 to be added to 0,0412939 = 0,0412988 = Log. of 1,099762 Inches = x, the leſſer Diam. ∴ x^{x} = 1,110245 the greater Diameter $x\frac{3x}{2}$ = 1,169845 the Depth; and 1,1218891 is the Content of the Glaſs; conſequently each *Mathematician* muſt drink (Log. 115,5 — Log. 1,1218891 — Log. 3 =) 34,317115 Times to empty the Bowl.

Caſe 2. From above, $\overline{x^{\overline{x+1}}+x^{2}+x^{2x}}\times d\,x^{\frac{3x}{2}}=x)x)^{x}$, and Log. Log. $\overline{x^{x+1}+x^{2}+x^{2x}}$ + Log. d + Log. $x\times\frac{3x}{2}$ — Log. Log. x — Log. $x\times x=0$. Hence by Approximation and operating as above, x is had = 1,0960212 Inches, the leſs Diameter, whence x^{x} = 1,1057132 Inches, the greater Diameter, $x\frac{3x}{2}$ = 1,1626894 the Depth; and 1,1066965 is the Content of the Glaſs, conſequently each *Mathematician* muſt drink $\left(\frac{115{,}5}{1{,}106965\times3}\right)$ = 34,788213 Times to empty the Bowl. *Q. E. I.*

6. Queſtion (166) anſwered by Mr. *Will. Kingſton* of *Bath*.

Given $a\dot{y}^{2}-\frac{y\dot{y}^{2}}{\dot{x}}-y^{2}\dot{y}^{2}-a\ddot{y}=0$. By ſubſtituting $-\frac{\dot{y}\ddot{x}}{\dot{x}}$ for $\ddot{y}$, we ſhall have $a\dot{y}^{2}-\frac{y\dot{y}^{2}}{\dot{x}}-y^{2}\dot{y}^{2}-\frac{a\dot{y}\ddot{x}}{\dot{x}}=0$. Hence $a\dot{y}^{2}\dot{x}-y\dot{y}^{3}-y^{2}\dot{y}^{2}\dot{x}-a\dot{y}\ddot{x}=0$. $a\dot{y}\dot{x}-y\dot{y}x-ay\ddot{x}=0$. Then making $\dot{x}$

conſtant, and finding the Fluent, we have $ay\dot{x}-\frac{y^2\ddot{y}}{2}-\frac{y^3\dot{x}}{3}-ay\dot{x}=2ay\dot{x}-\frac{y^2\dot{y}}{2}-\frac{y^3\dot{x}}{3}=0$. And by finding the *Fluent* again, we have $2ayx-\frac{y^3}{6}-\frac{y^3x}{3y^2}=0$. ∵ $12ax-y^2-2y^2x=0$. ∵ $\overline{12a-2y^2}\times x=y^2$ ∵ $x=\overline{12a-2y^2}=\frac{y^2}{12a}+\frac{y^4}{72a^2}+\frac{y^6}{432a^8}+\frac{y^8}{2592a^4}$ &c.

The ſame anſwered by Mr. *Thomas Moſs*.

By writing $-\frac{\dot{y}\ddot{x}}{\dot{x}}$ for $\ddot{y}$ (according to what is demonſtrated in L. D) the given Equation will be reduced to $a\dot{y}\dot{x}-y\dot{y}^2-y^2\dot{y}\dot{x}+ay\ddot{x}=0$. Aſſume $\dot{x}=\dot{y}\times\overline{Ay+By^3+Cy^5}$ &c. Then $\ddot{x}=\dot{y}^2\times\overline{A+3By^2+5Cy^5}$ &c. And by ſubſtituting theſe Values, the Equation will become $\left.\begin{array}{l}2Ay+4aBy^3+6aCy^5+8aDy^7\ \&c.\\ -y-Ay^3-By^5+Cy^7\ \&c.\end{array}\right\}0.$ Whence by comparing the homologous Terms $A=\frac{1}{2}a$, $B=\frac{A}{Aa}=\frac{1}{2.4a^2}$, $C=\frac{B}{6a}=\frac{1}{2.4.6a^3}$ &c. Hence $\dot{x}=\dot{y}\times\frac{y}{2a}+\frac{y^3}{2.4a^2}+\frac{y^5}{2.4.6a^5}$ &c. And conſequently $x=\frac{y^2}{2.2a}+\frac{y^4}{2.4.4a^2}+\frac{y^6}{2.4.6.6a^3}+\frac{y^8}{2.4.6.8.8a^4}$ &c.

Mr. *Will. Swith* anſwers the ſame as follows.

In the given Equation, write $\frac{\dot{y}\ddot{x}}{\dot{x}}$ for its equal $-\ddot{y}$ (as is demonſtrable) then divide by $\dot{y}$, and bring it out of Fractions, we have $a\dot{y}\dot{x}-y\dot{y}^2-y^2\dot{y}\dot{x}+ay\ddot{x}=0$. Aſſume $x=Ay^n+By^{n+5}+Cy^{n+s}+Dy^{n+t}+Ey^{n+v}$ &c. Then writing nAy^{n-1} and $n.\overline{n-1}a.Ay^{n-2}$ for $\dot{x}$ and $\ddot{x}$, it becomes, $anAy^{n-1}y-n-Ay^{b-1}+n.\overline{n-1}.Ay^{n-1}=0$. Wherein $n-1$ and 1, being the leaſt Indices, we have $2n-2=1$; ∵ $n=\frac{2}{3}$; which wrote for n above and properly ordered we get $x=Ay^{\frac{2}{3}}+By^2+Cy^{\frac{5}{2}}+Dy^3+Ey^{\frac{7}{2}}+Fy^4$ &c. Hence by common *Fluxionary* Principles $B=\frac{1}{4a}$, $C=\frac{3A}{25a}$, $F=\frac{1}{32}$ &c. And A. D, E may be taken at Pleaſure equal to b, c, d; conſequently $x=by^{\frac{3}{2}}+\frac{1}{4a}y^2+\frac{3b}{25a}y^{\frac{5}{2}}+cy^3+dy^{\frac{7}{2}}+\frac{1}{32}y^4+$ &c. *W. W. R.*

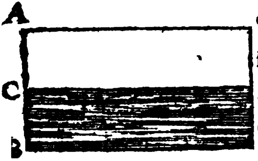
7. Queſt.

7, Queſtion (177) anſwered by Mr. *Tho Moſs.*

This Queſtion (I humbly apprehend) in the Manner it is propoſed, is unlimited; the Ratio of the Denſities of the Bodies, as well as their Times of Rotation, ought to be given: Now the equatorial Diameter and the Axis of the Earth being in the Ratio of 230 to 229 (by NEWTON's *Principia*, vol, ii. p. 243.) And the Difference between the two Diameters being always as the Radii directly, and the Square of the periodic Time inverſely; but, in this Caſe, we are to conſider only the Ratio of the two Diameters; which Ratio, it is plain, will be truly effected by the Denſities and the Times of Rotation, without regarding the Magnitudes of the Bodies. Moreover ſince the Squares of the periodic Times of the *Earth* and *Jupiter*, are in the Ratio of 29 to 5; and that of their Denſities as 400 to $94\frac{1}{2}$; it follows (becauſe the Difference of the two Diameters, of two equal Bodies, equally denſe, are as the Squares of the Times of Rotation inverſely) that $29 : 1 :: 5 : \frac{29}{5}$ which is as the Difference of the equatorial and polar Diameters of a Sphere whoſe Time of Revolution is $9^h\ 56'.$ and Denſity equal to that of our Earth: But as 400 (as the Denſity of the Earth) $: \frac{29}{5} :: 94\frac{1}{2}$ (as the Denſity of Jupiter) $: \frac{400}{94\frac{1}{2}} \times \frac{29}{5}$; which is as the Difference of the Diameters of Jupiter; ∴ as $\frac{400}{94\frac{1}{2}} \times \frac{29}{5} : 229$, or as $\frac{400}{94\frac{1}{2}} \times \frac{29}{5} \times \frac{1}{229} : 1$ (and not as $\frac{29}{5} \times \frac{400}{\frac{911}{2}} \times \frac{229}{1}$ to 1., which muſt be an Error of the Preſs, in NEWTON's Prin. vol. ii. p. 244) ſo is the Difference of the Diameters of Jupiter to his leſſer Diameter, that is as 1 : 9.34 nearly: Hence the polar Diameter of Jupiter is to his Diameter from Eaſt to Weſt; as 9 34 : 10,34 nearly. After the very ſame Manner the Ratio of the Diameters of the other bodies are determined; when the Times of their Rotations and Denſities are known.

8. Queſtion (178) anſwered by Mr. *Tho. Hare*, of *Sheffield.*

Let $AB = b$, $s = 600''$, $a = 3600''$, $b = 4800''$, $c = 7200''$, $CB = x$, and $t =$ Time of filling to C; then the Time of emptying, the ſupplying Cock being ſtop'd is $\frac{abc}{ab + ac + cb} = 1600''$, which put $= 2p$, and the Time of emptying with the firſt Velocity is known



known to be $=p$; then $s : b :: 1'' : \frac{b}{s} =$ the Velocity of uniform filling; the evacuating Cocks being ſtopped; and $p : b :: 1'' : \frac{b}{p} =$ the Velocity of Deſcent at the firſt Inſtant, the ſupplying Cock being ſtop'd: Again $\sqrt{b} : \sqrt{x} :: \frac{b}{p} : \frac{\sqrt{bx}}{p} =$ uniformal Velocity of Deſcent the ſupplying Cock being ſtop'd; then $\frac{b}{s} - \frac{\sqrt{bx}}{p} =$ abſolute Velocity of the Surface upwards at C, all the Cocks being open. Again $\frac{pb - s\sqrt{bx}}{sp} : 1'' :: \dot{x} : t = \frac{sp}{\sqrt{b}} \times \frac{\dot{x}}{p\sqrt{b}\,s\sqrt{x}}$; whoſe correct *Fluent* is $t = \frac{2ps}{s} \times$ Hyp. Log. $\frac{p\sqrt{b}}{p\sqrt{b}\,s\sqrt{x}} - \frac{2p\sqrt{x}}{\sqrt{b}}$: and whence $x = b$, the whole Time of filling is $= \frac{2ps}{s} \times$ Hyp. Log. $\frac{p}{p-s} - 2p =$ 22′ 37″ 25‴.

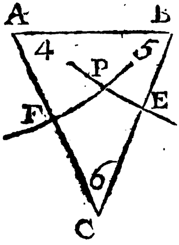
Mr. *Tho. Garrard*, the Propoſer's own Solution.

Firſt $\frac{1}{\frac{1}{60}+\frac{1}{80}+\frac{1}{120}} = 26\frac{2}{3} =$ the Time of running out, ſuppoſing the Ciſtern full, and the ſupplying Cock ſtop'd, and all the evacuating Cocks open; but half this Time $= 13\frac{1}{3}$ Minutes is the Time in which the ſame would be emptied if the evacuating Cocks always ran with the ſame Velocity as when the Ciſtern is quite full, which call c, and let $s = 10$ Minutes the Time of filling by the ſupplying Cock, — $aa =$ the whole Height of the Ciſtern, and zz any variable Height of the Water within at the End of any Time t. Then will $\frac{aa}{s} =$ the Velocity *per* Minute of uniform filling by the ſupplying Cock when the evacuating Cocks are ſtopped $\frac{aa}{c} =$ the Velocity *per* Minute, with which the Water would at firſt be depreſſed, ſuppoſing the Ciſtern full, the ſupplying Cock ſtop'd, and all the evacuating Cocks open. But $a : z :: \frac{aa}{c} : \frac{az}{c} =$ the Velocity of Deſcent at any Height z $\begin{cases}\text{the ſupplying Cocks ſtop'd}\\ \text{\& the evacuating Cocks open.}\end{cases}$

Then $\frac{aa}{s} - \frac{az}{c} =$ the abſolute Velocity of filling ſuppoſing all the Cocks open: Conſequently $\frac{2z\dot{z}}{\frac{aa}{s} - \frac{az}{c}} = \dot{t} = \frac{2sc\dot{z}z}{caa - saz}$ whoſe Fluent corrected (from Form the 4th of *Emerſon's* Flux.) is $t = \frac{2ccL}{s} \times \text{Log.} \frac{ca}{ca - sz} - \frac{2cz}{a}$ for the Time of filling up to any Height z; and when z^2 becomes $= a^2$ (the whole Height) then t, (the whole Time of filling the Ciſtern) becomes $\frac{2ccL}{s} \times \text{Log.} \frac{c}{c - s}$ leſs $2c = 22{,}6232263$ Minutes.

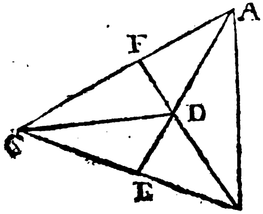
9. Queſtion (179) anſwered by Mr. *Thomas Moſs.*

As neither the Time of Deſcription, nor the Poſition of the Perſon at any one Inſtant is given, therefore conclude this Prob. requires nothing further, than to determine in what Track a Perſon paſſing along the Street, muſt always keep in, ſo that he ſhall have the leaſt Quantity of the Rays of Light falling upon him, in any aſſigned Time; or, which is the ſame, he ſhall always keep in the darkeſt Part of the Street.



Let A and B, repreſent the two Lamps on one Side of the Street, and C that on the other Side; join AC and BC; and take BE to CE in the Ratio of 5 to 6, alſo take AF to CF, as 4 to 6. Then if, by Theorem 15. p. 74. *Simpſon's* Geometry, two Circles be deſcribed, the Peripheries thereof will interſect in a Point P; whence it is manifeſt that the Perſon muſt deſcribe the Arches of two different Circles, and it is moreover evident that he muſt both *begin* and *end* his Path on that Side of the Street whereon the two Lamps are placed. The Method of determining the Magnitudes of the ſaid Circles, or the Diſtance, between any two aſſigned Poſitions is very obvious from the above Quotation.

The ſame anſwered by Mr. *Wm. Kingſton.*

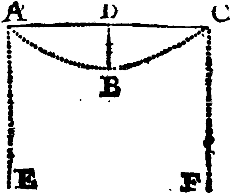


Given AB $= 34$, BC $= 40$, and AC $= 42$; then by the Prop. of Light $\frac{6}{EC^2} = \frac{5}{BE^2}$; hence EC $= 19.088$, BE $= 20{,}912$ and $\frac{6}{CF^2} = \frac{4}{AF^2}$; hence FC $= 23{,}122$ and AF $= 18{,}878$; and

4 5 6

whence AD, BD and CD are found in Proportion as 1, 1,118, and 1,225. Then in the Triangle ABE are known two Sides, and the included Angle; from whence the Angle BAE is found 36° 27′; then, in the Triangle ABD, are known the Angle A, and the Ratio of the Sides AB, and BD, as 1 to 1,118 from whence are found AD = 19,412, and BD = 21,707, and DC will be found = 25,988, from whence the Path is determined.

10. Queſtion (170) anſwered by Mr. *Tho. Allen* of *Spalding, Lincolnſhire.*



Put AB (half the Length of the Curve) $= z$, the Abſciſſa DB $= x$; then (the Curve ABC being the * *Catinary*) the Semiordinate AD = DC (c) will be = *Hyp. Log.* $\overline{\frac{z+\sqrt{aa+zz}}{a}}\,a$; or $\frac{c}{a} =$ *Hyp. Log.* $\frac{z+\sqrt{aa+zz}}{a}$; which Equation, by putting N = the Number whoſe *Hyp. Log.* is Unity, becomes $N^{\frac{c}{a}} = \frac{z+\sqrt{aa+zz}}{a}$ ∴ $a^2N^{\frac{2c}{a}} - 2azN^{\frac{c}{a}} + z^2 = a^2 + z^2$; whence $z = \frac{a^2N^{\frac{2c}{a}} - aa}{2aN^{\frac{1}{2}}} = \overline{N^{\frac{c}{a}} - N^{-\frac{c}{a}}} \times \frac{a}{2}$, and $\sqrt{aa+zz} = \overline{N^{\frac{c}{a}} + N^{-\frac{c}{a}}} \times \frac{a}{2}$. Moreover by *Mechanics*, $\dot{x}\left(\frac{z\dot{z}}{\sqrt{aa+zz}}\right) : \dot{z} :: z : \sqrt{aa+zz} =$ the Tenſion of a Particle of the Chain at A, ſuſtaining the Part AE in a Perpendicular Direction, which Tenſion (it is plain) muſt be equal to the Weight of that Part; and the Weights of any two Parts of the Chain being as their Lengths, it follows, that $\sqrt{aa+zz}$ expreſſeth the Length of the Part AE, or CF. Therefore $2\sqrt{aa+zz}+2z$, or its equal $2aN^{\frac{c}{a}}$ will be = 20 (L) the whole Length of the Chain EABCF; which (by the Queſtion) is a *Minimum*. In Fluxions $\dot{a}N^{\frac{c}{a}} - \frac{\dot{a}N^{\frac{c}{a}}}{a} = 0$. Whence $c = a$, which ſubſtituted for a, in the above Minimum, and value of z; we get $2cn = L$ ∴ $2c = \frac{L}{N} = 7{,}3576$.

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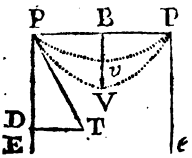
* See *Landen's* Luc. p. 34.

the Length of the horizontal Line AC, and $2z = \overline{N - \frac{1}{N}} \times c =$ 8,64664, the Length of the Curve ABC, when the given Chain is the ſhorteſt that will poſſibly hang at Liberty upon the two Supporters at that Diſtance. Again, ſince the Chain will reſt in two different Poſitions upon the Pins, it is obvious, that a will have two real and poſitive Roots, in the Equation $2aN^{\frac{c}{a}} = L$, which two Values (4,884, and 2,5935), being ſeparately ſubſtituted for a, in the Equation $z = N^{\frac{c}{a}} - N^{-\frac{c}{a}} \times \frac{a}{2}$, we have $2z = 7,6146$, and $2z = 9,3274$ Inches, the Lengths of the two Curves reſpectively, when the Pins are 7 Inches from each other, as required.

The ſame anſwered by Mr. *Tho. Moſs.*

This *Problem* is eſſentially the ſame, as that in *Landen's* Lucubrations, p. 33. from whence it appears to have been taken. The ingenious Mr. *Landen* has there proved the *Curve* to be the *Catinary*; and has alſo determined the Length of the Curve, when the whole Length of the Chain, and the Diſtance of the Pullies (or Pins) are given: Moreover in his *Scholium* he determines, *the Length of the ſhorteſt Chain which can poſſibly reſt ſuſpended*, &c. Whence as the Length is (by *Tabularius*) given; the required Diſtance of the Pins, and the Length of the Curve, from the ſaid *Sch.* becomes known.

The Solution by *Tabularius* (the Propoſer) is as follows.



It is evident, that the Ends of the Chain, hanging perpendicular from each Pin, muſt be equal, in the ſame Curve, to preſerve the *Equilibrium*. Put EP + PV = $eP + Pu = 10 = c$, BV or $Bu = x$, $PB = y$, Pu or $PV = PD = z$; then will the Force drawing in the Direction of the Curve at v, or. $V = a = DT$ parallel to PB, and the Tangent $PT = a + x = \sqrt{a^2 + z^2} =$ the Tenſion of the Curve at P, which (by the Nature of the Queſtion) muſt be equal to the Weight of the Part (PE) of the Chain drawing in a perpendicular Direction; whence $z + \sqrt{a^2 + z^2} = c \therefore z = c - \frac{a^2}{c}$: And putting A, C, and Y, for the Hyp. Log. of a, c, and y, we have (by the Property of the *Catenaria*) $y = aC - aA$; a *Maximum* $\therefore C\dot{a} - A\dot{a} - \dot{a} = 0$.

(Putting $\frac{\dot{a}}{a}$ for $\dot{A}$) whence $A = c - 1 = 1,302585$; which, put for A in the *Maximum*, gives $y = a = 3,6788$, ∵ $2y = 7,3576$; and $2z = 8,646644$. Now, becauſe $y = a$, and ∵ $C - Y = 1$, when Y is a *Maximum*, it appears that, when $C - Y$ is greater than Unity, a will have two Values in the Equation $y = \dot{a}C - aA$; or, $\frac{y}{a} + A = C$; and ∵ the Chain will then reſt in two Poſitions: And taking $y = 3,5$; I find $a = 2,593137$, and $2z = 9,327564$, the Length of the Curve PVP; alſo $a = 4,8839$, and $2z = 7,614752$, the Length of the Curve PvP.

11. Queſt. (171) anſwered by Mr *Tho. Moſs*, the Propoſer.

Firſt, it is very plain, that B (before he begins to throw) has the very ſame Probability of throwing either more or leſs (let which will be aſſigned) than 35 Heads at 71 Throws, as A has of throwing more or leſs (but one muſt be aſſigned) than 42 Points at 4 Throws, with 3 Dice, allowing all the Points to be reckoned, when an Ace (or more) ariſes ∴ it is plain, B has the ſame Probability of throwing 37 Heads (becauſe by the Queſtion 7 came in the firſt Throw) as A has of throwing 42 Points without any ſuch Reſtriction as mentioned in the Problem.

Now conceive a ſingle *Die* on which there is no *Ace*; then the Probab. of throwing 3,333 &c. at one Throw; or, which comes to the ſame, of throwing 10 at 3 Trials is the very ſame as B had of throwing 37 (as above); but if ſuch a ſingle *Die* be thrown twice, we may according to an Equality of Chance, have 3,333 &c. $\times 2 \times \frac{5}{6} \times \frac{5}{6}$; becauſe the Probab. of getting 6,666 &c. (3,33 &c. × 2) is, it is evident, only $\frac{5}{6} \times \frac{5}{6}$ ($= \frac{25}{36}$, the Probability of an Ace miſſing twice together); ∵ 3×3333 &c. $\times \frac{5}{6} \times \frac{5}{6} \times \frac{5}{6}$ ($= 10 \times \frac{125}{216} = 5,787$ &c. what may, according to the Nature of the Queſtion, and the Laws of Chance, ariſe in one Throw with three ſuch Dice; that is, there is the ſame Probability for it, as B has of throwing 37 Heads (as above) therefore 17,361 &c. is what may ariſe in three Throws, with three Dice, whence 23,361 &c. is what may ariſe, becauſe ſix came in the firſt Throw; therefore as 38 (37+1; becauſe A by the Queſtion muſt throw 1, at leaſt, more than B to win) : 23,361 &c. : : B's Chance of Winning to that of A's ∵ B ought to have $\frac{38}{61,361\text{\&c.}}$ of 5 Guineas, *minus* his own Stake ($= 3,096$ &c. $- 2$) $= 1,096$ &c. $=$ 1 *l.* 3 *s.* 0¼ very near:

Or thus, B has $\frac{38}{61,361 \&c.}$ for a Probability of winning three Guineas and A has only $\frac{23,361 \&c.}{61,361 \&c.}$ for a Prob. of winning 2 Gu. whence $\frac{38}{61,361 \&c.}$ of 3 Guineas *minus* $\frac{23,361 \&c.}{61,361 \&c.}$ of 2 Guineas $=1,096$ &c. (the ſame as above) what B ought to receive of A to give him (the latter) back his three Guineas, *i. e.* to draw the Wager.

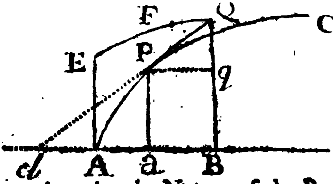
Otherwiſe.

It is evident that B has the ſame Prob. of throwing 37 Heads (becauſe 7 came in the 1ſt Toſs, by the Qu.) as A has of throwing 42 Points at 4 Throws with 3 regular Dice; but the Prob. of A's miſſing all the Aces in the 3 Throws is $\frac{5}{6}\times\frac{5}{6}\times\frac{5}{6}$ $(=\frac{125}{216})$ ∴ it is plain that, according to an Equality of Chance, A can only expect one Trial and $\frac{125}{216}$ of a Trial; in which, with 3 Dice, according to the Circumſtance of the Prob. he has a Probability of getting $10+7,361$ &c. $(10+\frac{1,59\times 10}{216})$ therefore A has the ſame Probability (as B of getting 37 Heads) of getting 17,361 &c. (+6 which came in the firſt Throw) $=23,361$ &c. the very ſame as above.

N. B. Mr. *Moſs* deſires it may be obſerved, that his Solution is given only as an *Approximation:* And we muſt acquaint our Contributors, that we received no other Solutions.

12. Queſt. (172) anſwered by Mr. *Tho. Allen* of *Spalding*.

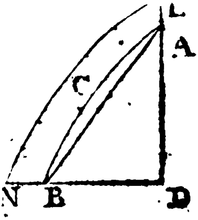
Let A repreſent the Place of the *French* Ship, and E that of the *Engliſh*, at the Beginning of the Chaſe; P and Q, two other cotemporary Poſitions of them, while the former is purſuing the latter. Continue QP, till it interſects BaA, the Axis of the Parabola AFC, continued in *d*, and Pa, and QB being perpendicular, and P*q* parallel to the ſaid Axis; call the Parameter of the Parabola, *p*; Aa, *v*; AB, *x*; BQ, *y*; and AE $=$ PQ, *a*; then, by the Nature of the Parab. a*d* will be $=2v$, P*d* $=\sqrt{pv+4vv}$; and by ſim. Triangle $\sqrt{pv+4vv} : 2v :: a :$ $Pq = \frac{2av}{\sqrt{pv+4vv}}$; $\sqrt{pv+4vv} : \sqrt{pv} :: a : Qq =$ $\frac{a\sqrt{pv}}{\sqrt{pv+4vv}}$. It is obvious therefore, that $x+\frac{2av}{\sqrt{pv+4vv}}$



$=x$; and $\sqrt{pv}+\frac{a\sqrt{pv}}{\sqrt{pv+4vv}}=y$: From which two Equations, by exterminating v, will be obtained the Equation of the Curve EFQ in which the Point Q will always be found: or the Track which the Frigate deſcribed whilſt ſhe was purſued.

Moreover ſince the Abſciſſa, and Ordinate of a Semiparabolic Curve, are given $=8$, and 5 Miles reſpectively; call them x, and y; then will $\frac{y\sqrt{\overline{\frac{1}{4}p^2+y^2}}}{p}+\frac{1}{4}p\times H.Lo.\frac{y+\sqrt{\overline{\frac{1}{4}p^2+y^2}}}{\frac{1}{2}p}$ $=10,465$ Miles, be the Length of that Curve, or Diſtance ſailed by the *French* Ship of War; therefore, the Diſtance ſailed by the *Engliſh* Frigate during the Chaſe, if from thence found $=13,081125$ Miles. *Q. E. I.*

The ſame anſwered by Mr. *Joſhua Holdroyd.*



Let ACB be the Track deſcribed by the Man of War, then by the Queſtion AB $=10$ and AD $=8$, alſo DB $=6$; conſequently the Length of the Curve is $=10\ 678258=$ the Length of the Track deſcribed by the Man of War; and then (by the Queſtion) $4:5::10,678258:13,347822=$ the Length of the Track deſcribed by the Frigate: Alſo becauſe they bore away with an uniform Velocity, and always kept the ſame Diſtance from each other, it is evident, that the Curve will be the ſame with the foregoing (viz.) a Parabola. *Q. E. I.*

13. Queſt. (173) anſwered by Mr. *Wm. Kingſton.*

Given $a^2\dot{x}^2=y\dot{y}\dot{x}-x\dot{y}^2+c\dot{y}^2$ ∴ $a^2\dot{x}^2-y\dot{y}\dot{x}=\overline{c-x}\times\dot{y}^2$ ∴ $\dot{x}^2-\frac{y\dot{y}\dot{x}}{a^2}=\frac{\overline{c-x}}{a^2}\times\dot{y}^2$. The Square compleated is $\dot{x}^2=\frac{y\dot{y}\dot{x}}{2a^2}+\frac{y^2\dot{y}^2}{4a^2}=\frac{\overline{c-x}}{a^2}\times\dot{y}^2+\frac{y^2\dot{y}^2}{4a^4}=\frac{\overline{4a^2\times c-x+y}}{4a^4}\times\dot{y}^2$, hence $\dot{x}=\frac{\dot{y}}{2a^2}\sqrt{\overline{4a^2\times c-x+y^2}}+y$. Alſo $\overline{c-x}\times\dot{y}^2+y\dot{y}\dot{x}=a^2\dot{x}^2$ ∴ $\dot{y}^2-\frac{y\dot{x}\dot{y}}{c-x}=\frac{a^2\dot{x}^2}{c-x}$. □C is $\dot{y}^2-\frac{y\dot{x}\dot{y}}{c-x}+\frac{y^2\dot{x}^2}{4\times\overline{c-x}^2}=\frac{a^2\dot{x}^2}{c-x}+\frac{y^2\dot{x}^2}{4\times\overline{c-x}^2}=\frac{\overline{4a^2\times c-x+y^2}\times\dot{x}^2}{4\times\overline{c-x}^2}$ ∴ $\dot{y}=\frac{\dot{x}}{2c-2x}\times\sqrt{\overline{4a^2\times c-x+y^2}}-y$.

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This put for the above, gives $\dot{x}=\frac{\dot{x}\sqrt{4a\times\overline{-x+y^2}}-y}{2c-2x}\times\frac{\sqrt{4a^2\times\overline{c-x}+y^2}-y}{2a^2}$. That is, $4a^2c-4a^2x=4a^2\times\overline{c-x}+y^2-y^2$; Whence the correct Fluent is $\frac{a^2x^2}{2}=\frac{y^2x}{2}-\frac{y^2x}{2}+\frac{cy^2}{2}=\frac{\;^2}{2}$ ∵ it is plain that $\overline{y\dot{x}-x\dot{y}}\;x\dot{y}=0$. By making $\dot{x}$ conſtant, and finding the Fluent, we have $\frac{y^2\dot{x}}{2}=xy\dot{y}$ and finding the Fluent again $\frac{y^2x}{2}=\frac{xy^2}{2}$ which confirms the above.

The ſame anſwered by *Tabularius*.

Making $\dot{x}$ Fluxion conſtant, the given Equation in Flux. is $y\ddot{y}\dot{x}-2x\dddot{y}\dot{y}+2c\dddot{y}y=0$ ∴ $\dot{x}=\frac{2\dot{y}\times\overline{x-c}}{y}$; which being wrote for $\dot{x}$ in the given Equ. it becomes $\frac{4a^2\dot{y}^2\times\overline{x-c}^2}{y^2}=\dot{y}^2\times\overline{x-c}$ ∴ $4a^2\times\overline{x-c}=y^2$ and ∴ $y=2a\sqrt{\overline{x-c}}$.

The ſame anſwered by Mr. *T. Allen*, the Propoſer.

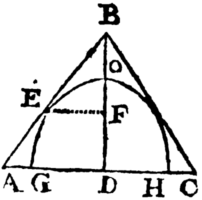
By putting each Side of the given Equation into *Fluxions*, ſuppoſing $\dot{y}$ conſtant, we get $2a^2\ddot{x}\dot{x}=y\ddot{y}\dot{x}+\dot{y}^2\dot{x}-\dot{x}\dot{y}^2+y\dot{y}\ddot{x}$; wherefore $2a^2\dot{x}=y\dot{y}$; whoſe Fluent is $4a^2x=y^2$ + ſome conſtant Quantity effected with c, which Quantity muſt be $=4a^2c$, and no other; for, it is plain, that, when x becomes equal to a, y is then $=0$, or is juſt beginning to exiſt. Therefore $4a^2x=y^2+4a^2c$, is the correct Equation of the Fluents.

But to find the ſame according to the Reſtrictions of the Problem we have, from the Equation $2a^2\dot{x}=y\dot{y}$; $\dot{y}=\frac{2a^2\dot{x}}{y}$, which ſubſtituted for $\dot{y}$ in the original Equation, gives $a^2x^2=2a^2\dot{x}^2-\frac{4a^4x^2\dot{x}^2+4ca^4x^2}{y^2}$; whence $y^2=2y^2-4a^2x+4ca^2$ ∴ $4a^2x=y^2+4a^2c$. The very ſame as before. *Q. E. F.*

General Remarks, *&c.*

Tabularius obſerves in the Solution to Qu. 159. that there is Miſtake, occaſioned, by ſuppoſing the Diameter and Ordinates to be at right Angles; which can only be when the Triangle is *Iſoſceles*: His Solution is as follows.

The Triangle ABC being given, the Line BD which biſects the Baſe is alſo given. Parallel to AD draw EF to the Point of contact; and put $BD=b$, $AD=DC=d$; Sine $<$ at $D=s$; the Diameter $DO=v$, and the Parameter to that Diameter $=p$: Then will $BO=OF=b-v$; and by ſim. Δ's $b:d::2\times\overline{b-v}:\frac{2d}{b}\times\overline{b-v}=EF=\overline{p\times b-v}|^{\frac{1}{2}}$ by the Property of the Parabola $\therefore p=\frac{4d^2}{b^2}\times\overline{b-v}$, and $\frac{4d^2v}{b^2}\times\overline{b-v}=$



$\overline{GD}|^2=\overline{DH}|^2$, whence $GH=\frac{4d}{b}\sqrt{\overline{bv-v^2}}$; and the Area of the Parabola $=\frac{8dsv}{3b}\sqrt{\overline{bv-v^2}}$, a Maximum, in Fluxions, $3bv^2\dot{v}-4v^3\dot{v}=0$, $\therefore v=\frac{3b}{4}$, whence $GH=d\sqrt{3}$, and the Area $=\frac{sbd\sqrt{3}}{2}$.

If $\overset{2}{AC}=\left\{\begin{array}{l}75\\70\\65\end{array}\right\}$ then $BD=\left\{\begin{array}{l}56{,}18\text{\&c.}\\60{,}8276\\64{,}857\end{array}\right\}$ $DO=\left\{\begin{array}{l}42{,}135\\45{,}62\\48{,}6427\end{array}\right\}$ $GH=\left\{\begin{array}{l}64{,}95\text{\&c.}\\60{,}62\\56{,}29\end{array}\right\}$ and, in every Caſe, the Area of the Parabola $=1813{,}66$ &c.

Cor. The Area Δ : the Area of the Parabola $::2:\sqrt{3}$ univerſally, let the Sides of Δ be what they will; and when $s=1$, the Δ will be *Iſoſceles*.

Mr. *Rob. Marſh* obſerves, that Mr *Haycroft's* Ænigma N°. (5) 119, is copied from *The Muſe in good Humour*, &c.

We again return Thanks to our worthy and ingenious *Contributors* for the Aſſiſtance and Encouragement they give, in this Undertaking; deſiring (as before) that they will ſend us *Things* entirely *new*; and alſo, that their *Schemes* may be drawn as perfect as poſſible, and of a proper *Size* for the *Diary*; as well as bring out all *Equations* in *Numbers* &c. and further (as ſeveral Letters came too late to be inſerted this Year) hope they will for the future, ſend them within the Time limited; directed for *Tho. Peat*, Schoolmaſter in *Caſtlegate, Nottingham*; and no where elſe (Poſt paid)

Nottingham, 2 *July*, 1757.

New Mathematical Questions propoſed to be anſwered in the next Year's Diary.

(1) Queſt. 174. by Mr. *Sam. Towndrow* of *Cheſterfield*.

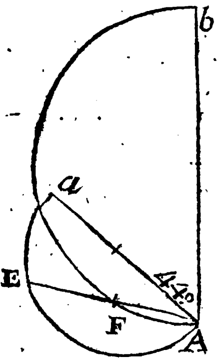
Let the Circle inſcribing a regular Heptagon be given, whoſe by an Equation not exceeding a *Cubic*, and to deduce the Root of the ſaid cubic Equation, by the Canon of Sines, without deſtroying the ſecond Term (as the uſual Method is) with the Inveſtigation and Operation, true, to nine or ten Decimals at the leaſt.

(2) Queſt. 175. by Mr. *Tho. Hare* of *Sheffield.*

Being at a Gentleman's Houſe one Evening, four of us agreed to have a Game at *Whiſt*; the Deal happened to the Perſon on my *left Hand*, and the three firſt Cards he gave me, were *Ace*, *Duce* and *Tray* of *Clubs*, and in that Order: Quere the Number of Tryals he might have undertaken (with Equality of Chance) to give me thoſe Cards, in the Order aforeſaid?

(3) Queſt. 176. by Mr. *Wm. Bevil* of *Harpſwell.*

What will be the Time of the Day, on *May* the 29, 1759, in the Lat. 78° 59′ 22″ N. when the Degrees of the Sun's Azimuth from the South, are to thoſe of his Altitude, as *four* is to *three*?



(4) Queſt. 177. by Mr. *Tho. Moſs* of *London.*

The Diameters, A *a* and A *b* of the two Semicircles are given = 25 and 40 (equal Parts) reſpectively, alſo the Angle (*a* A *b*) formed by thoſe Diameters = 44°. 'Tis propoſed to draw a Line, from the Point A, ſo that the Rectangle contained under the two Chords AF, and AE; may be = 190,864; likewiſe to determine the Length of each Chord, and give the whole *geometrical* CONSTRUCTION.

(5) Queſt. 178. by Mr. *Alex. Rowe* of *Penzance.*

In the Winter Quarter, *Anno* 1757. Day broke 20′ paſt four, and that Morning the Sun roſe 16′ paſt nine: I deſire to know, *where* and *when* this happened?

(6) Queſt. 179. by Mr. *Tim. Drury* of *Great Houghton.*

One Day laſt Spring, having a Journey to perform, my Road lying directly *Weſt*, I obſerved when I ſet out, my Shadow at Sun riſe, made an Angle with the Road of 24° 60′. after I had gone 20 Miles the ſame Morning, I obſerved my Shadow made an Angle with the Road of 70° 12′. when the Sun was 30′ high. From which I would know the Latitude of the Place; Time of Obſervation; and the Rate at which I travelled: It being uniform?

(7) Queſt. 180. by Mr. *Wm. Reeves* of *Bourton, Gl.*

In a right angled Triangle, there are given the *Ratio* of the Sides as 3 to 4: And the Difference between the *Area* of its *inſcribed* Circle, and inſcribed Square, =20,2825. required the *Area*, and Sides of the Triangle?

(8) Queſtion 181. by Mr. *John Cheſter*.

A Gentleman offers a Farmer a Leaſe for 21 Years (to commence the 1ſt Day of *January* 1758.) of ſeveral Parcels of Land in the Manner following (*viz.*) 24 Acres of Land, for 24*l.* *per Annum*. But, if a Depoſit of 100*l.* be immediately paid down, to pay 14*l.* *per Annum*. And 48 Acres for 48*l.* *per Annum*. But if 200*l.* be paid down, then only to pay 28*l.* *per Annum*, and ſo in Proportion for 120 Acres: Now, ſuppoſing the Farmer pays his Rent by half yearly Payments; and allowing him 5*l.* *per Cent.* *per Annum*, compound Intereſt for the Money paid down; which Offer will be of the moſt Advantage to him in 21 Years; and the Sum ſaved thereby?

(9) Queſt. 182. by Mr. *Wm. Kingſton* of *Bath*.

Being in a Room 10 Feet wide, having two Windows in Front, each 3 Feet wide, 6 Feet high, 2 Feet and half above the Ground, and 3 Feet diſtance from each other: On the Outſide is a Slope riſing from the Houſe, in an Angle of 30° with the Horizon: Suppoſing I ſtand at the fartheſt Side of the Room, in a direct Line with the Centre of the Pier; I demand what Area I can ſee of the Slope, my Eye being 5 Feet and half from the Ground?

(10) Queſt. 183. by Mr. *Sam. Towndrow* of *Cheſterfield*.

Let $x^x + a = \frac{a^2}{x}$. Quere x true to ſix Places of Figures. By a general Method. Note $a=1000$,

(11) Queſt. 184. by Mr. *Alex. Rowe* of *Penzance*

Required the Value of x, when $\overline{x^{\frac{1}{3}}}^{\overline{x^{\frac{2}{3}}}^{x^{\frac{1}{7}\frac{2}{5}}}}$ is a *Maximum*; or the greateſt Poſſible } of a Pound Str.

(1) Queſt. 185. by the ſame.

Required the Area, and Conſtruction of the Curve expreſſed by the Equation $10bax - 5bx^2 = 5x^3$; in which $b=12$ Poles?

Anſwers

ANSWERS to the ÆNIGMAS in the laſt Year's Diary.

1. A THUMB.
2. A BEARD.
3. Number THREE.
4. A TEAR.
5. The *Word* NO.
6. ALE.
7. BACK-GAMMON TABLE.
8. LIFE.
9. A WALNUT.
10. IGNORANCE.

Mr. *Charles Underwood* of *Bath*, ſolves all the laſt Year's Ænigmas, in a ſerious Reflection on the *paſt*, and *preſent* State of Old ENGLAND.

AH! Britons! Britons, *mourn* with TEARS, 4.
To ſee your Honour *loſt!*
You once did fill your Foes with Fears,
When o'er the SEAS You croſs'd,
No GOLD, could *Briton's* once be TRAY! 5: 10. 3.
Nor *Cowards* blaſt our Name:
For *Sea*, or *Land*, WE bore the Sway,
And CONQUER'D where we came:
But, now alaſs; we cannot boaſt
In this our preſent State;
But, let's renew the ancient *Toaſt* *,
And Love; but never Hate.
With one Conſent, join HAND ‡ and *Heart!*
Our *Nation* to Defend,
And Strife for ever hence depart,
That *Wars* may Glorious End!
So ſhall each Man enjoy his GLASS 6. of ALE.
In Peace (*under his Vine*)
Tho' GREY with *Age*, his LIFE may paſs †, 8. 2.
With Pleaſures near Divine.
From *Year* to *Year*, he may behold
The TREES their Produce bring; 9. WALNUT *Tree:*
And, when his GAME is almoſt told, 7.
He chearfully can ſing;
Long may the *Britiſh* MONARCH Reign,
In Peace, and Length of Days;
And, after Death *his* NAME remain,
In Honour, Fame, and Praiſe!

---

* Succeſs to old *England.* † Alluding to the Thumb. ‡ Alluding the Beard.

Meſſ. *G. Clarke Butler*, *William Ingram*, *John Palmer*, *William Smith*, *William Smith*, *Iſaac Tarrat*, and others, ſent us Poetical Solutions to the Ænigmas, which we cannot inſert for want of Room, &c.

New Ænigmas to be anſwered next Year.

(1) Ænigma 125, by Mr. *James Hall.*

Terra rudem peperit, ſed homo formavit in uſum;
Hic mihi patris erat, matris at illa loco.
Dein exornavit gemmis faber arte magiſtrâ,
Verbaque permiſit pauca ſed apta loqui.
Do formam, do ët opes; quis non amplectitur? ecce,
Me Venus, & Nymphæ, ac ipſe Cupido favet.
Et juveni gratus venio, placitusque puellæ,
Meque repubeſcens conſcia quærit anus:
Me vidua exoptat Thalamos jam experta priores,
Captat et audaci facta proterva manu.
Fidus honeſtati ſervus quoque templa frequento,
Inde ſacerdoti commoda magna fero:
Annuit ille mihi, riſuque: agnoſcit amicum,
Conjugis atque ſtolas muneris eſſe mihi.
Hic ruit in laqueum captus dulcedine prædæ;
Sero ſed aurati ſentit amara doli.
Væ miſero! fruſtrà ſunt omnia, vincula, claves,
Flagra, minæ—nihil eſt; cornua fronte gerit.
' O torus! O conjux! et tu digitale capiſtrum!
' Mille mali ſpecies! verba timenda ſono!
Nec mihi culpandum eſt; alibi Theodorus amatæ
Aviſiæ redolet ſuavia caſta ſuæ;
Atque meis fælix opibus ſylvanus amore,
Gaudia legitimi carpit honeſta tori.

(2) Ænigma 126, by Mr. *W. Swift*, of *Stow.*

Like *Adder*, or *Snake*, my ſlender Body moves,
And winding ſtill on different Bodies roves,
In narrow Bounds, I hold half human kind,
Impriſon Queens, yet ne'er was *tho't* unkind.
In Holes I ſneak, when Phæbus ſpreads his Light;
But leave them when his Abſence brings on Night.

(3) Ænigma 127, by Mr. *John Webſter*, of *Ringley*, in *Lancaſhire.*

My Head and Tail both equal are,
My Middle's ſlender as a *Bee*;
Whether I ſtand on Head or Heel,
'Tis all the ſame to you or me.
But, if my Head ſhould be cut off
The Matter's true; altho' 'tis ſtrange:
My Head and Body ſever'd thus,
Immediately to Nothing change!

(4) Ænigma 128, by Mr. *William Ingram*, of *Corf Caſtle.*

From the Woods and the Earth, I acknowledge my Birth,
Of my Shape I'm not going to brag;
For a Head I do lack, yet have Belly and Back;
But never an Arm, or a Leg.
I've a Body ſo thin, that there's no Guts within,
Such awkward ſtrange Figure I ſhew,
My Teeth let me tell ye, are plac'd on my Belly,
On which I do often times go.
But, I then have a Friend, that does help to the End,
And if I in Battle am found;
Stands by me ſo ſure, that I never give o'er
Till my Oppoſite falls to the Ground.
Nay, I oftentimes kill; tho' Blood ſeldom ſpill,
To conquer I never make Doubt;
For, when put in a Rage, do refuſe to engage,
With my Match, or ten Times as ſtout.
But to leave this Proceeding, and now for my Breeding
Know ye, that I'm not without Learning,
Tho' I don't underſtand, for to write a fair Hand;
In Numbers you'll own me diſcerning.
I can quickly *divide*; *multiply* too beſide,
You'd think me an Arithmetician:
From theſe Hints I don't doubt, but you'll ſoon find me out
And publiſh my Name and Condition.

(5) Ænigma 129, by Mr. *Thomas Hare*, of *Sheffield*, *Yorkſh.*

Whilſt Mortals ſtrive, ambitious of a Name,
And ſtudy various Ways to purchaſe Fame;
Oft pueril Thoughts, with florid Phraſe conjoin'd,
Betray the Meanneſs of the groveling Mind.
But, Souls, with Sapience and with Science fraught,
Ideas bright, and comprehenſive Thought,
Who Truth's fair Goddeſs to dull Sloth prefer,
Thoſe Honours claim, which ſmiling I prefer!
To trace my *Origin* ſhou'd you preſume,
Survey old *Greece*, reflect on Pagan *Rome*;
There, I in priſtine Pomp and flow'ry Pride,
Cæleſtials honour'd, Heroes dignify'd!
Beſtow'd on Statues, upon Shrines was hung,
Whilſt *Madrigals* in merry Madneſs ſung:
The Godhead pleas'd.—And Britiſh *Nymphs* ſtill pay,
The ſhort-liv'd Honours of a Summers Day.

What, tho' ſome Saints the Honours I beſtow'd,
Refus'd, nor, of my Uſe divine, allow'd;
In Temples ſtill my meagre Shape is ſeen,
But far unlike my Fragrance on the Green!
Thus, incoherent; yet, conſiſtent End,
Adorn the Gay, and funeral Rites attend.

(6) Ænigma 130, by *Tabularius.*

Ye Learned in *Sciences* profound,
Who can deep Myſteries expound:
From *Parallellograms* and *Squares*,
Can tell when *Mars* and *Venus* pairs;
And when the Reſt of the *Deities*
Make friendly Viſits in the Skies:
When *Luna* ſteals in Part away
From *Sol* his lamp that lights the day,
(Leaving this nether World in pain)
And when ſhe will reſtore again.
Attend, and ſummon all your Senſes;
I bring you ſage Intelligences,
Of Secrets rare, unknown to Quacks
Who write *predicting* Almanacks;
What ne'r their crony *Stars* cou'd tell
To *Partridge*, *Moor*, or *Sidrophel!*
  Like ſubtle *Conjurers* of State,
 Who Peace or War *prognoſticate*;
I foretell many a bloody Battle.
And, when ſly knaves *filch* poor men's
  Cattle,
Or rings or watches hap to ſtray,
At Opera, Maſquerade, or Play;
I tell the Time, and Place, and when,
And where, they may be found
  again.
I can much greater Things atchieve,
And, what you ſcarcely will believe:
The Clergy, I direct to th' Spot,
Where *good fat* Livings may be got:
I *tell* where *Rhino*, Houſe, and Land
Are to be had, at your Command;
And, what will cure all human
  Ills,
If you'll believe the *Doctor's* Bills;
Poſt haſte from Town to Town I go
And all pro bono publico.
  Ingenious *Philomath's* reveal
What, I've endeavour'd to conceal:
Examine well this learned Diary,
It ſoon will anſwer your Enquiry.

(7) Ænigma 131, by Mr. *John Dyke*, of *Manningford.*

Scarce twenty Years in Britain's Iſle,
  Have I Exiſtence found,
Altho' dark Myſteries I reveal,
  And Sciences profound.
I puzzle Men of ev'ry Rank,
  To cultivate their Brain;
Which, to ſome Perſons gives De-
  To others I bring Gain: [light
For Uſe to all, I am eſteem'd;
  And Poets without Doubt,
Aſſiſt, (ſuch as are Poets deem'd)
  And, *they* muſt find me out.

(8) Ænigma 132, by Mr. *Charles Underwood* of *Bath.*

Attend ye artful Nymphs and Swains
  While I my Fate reveal: [*Pains*
How many Hearts I've fill'd with
Nay more than *Love* can heal.
I with young Ladies *rank* in Name,
  (Tho' hated by them all:)
Becauſe I bring them oft to Shame;
  Too late for to recall.
But, if my Name they do *divide*,
  And take the latter *Part*:
I greatly puff them up with Pride,
  And win the Lover's Heart.
But, ah! poor *England* feels my weight
  Since it's engag'd in War:
Tho' noble *Blakeney* did his Part
  Not fearing *Death* nor *Scarr!*
Millions of Hearts I've made to *bleed*
  Yet I no Mercy ſhew:
Tho' I from Fortune's Race proceed
  And *daily* am with you.
The greateſt Monarchs are on Earth
  My Subjects, to a Man:
Now tell my name and trace my birth
  Avoid me, *if you can!*

(9) Ænigma

(9) Ænigma 133, by Mr. *John Palmer, Schoolmaſter* at *Wickham* in *Kent*.

Diſcerning Bards, wrapt in immortal Fame,
Undraw the Curtain, tell me what I am:
By tyrant Hands I gain'd *unwilling* Birth,
Torn from the Bowels of my Mother Earth!
My Form, then rude, am deſtined to feel
The keeneſt Blows from unrelenting Stell!
Geometric Form to gain, all this I bear,
And then a well known Figure I appear,
My *Harneſs* near of Kin, as ſome ſet forth,
Becauſe one Parent gave us both our Birth;
What Tortures *it* endur'd is hard to tell,
Nay *Damiens'* trifling to what *it* muſt feel
Before compleated: then our *place* we take
And find Employment *chiefly* with the *Great*.
With *Peers*, with *Knights*, with *Squires*, or ſuch Degree,
(But with *poor* Peaſant ſeldom deign to be.)
Midſt aromatic Banks my Progreſs make,
Yet, from their Fragrance, can no Pleaſure take,
For, I a Drudge, and perfect Slave muſt be,
Driven by Force, ſuch my hard Deſtiny!
Yet, on the verdant Greens, where *Beaus* do play
And *Nymphs* in ſportive Pleaſure paſs the Day
My preſſing Movements often I diſplay.
So obvious is my Tale, the Hints ſo plain,
That ſolving me, can never *crack* your Brain.

(10) 134, an Ænigma in *Proſe*, by *Aiſhmella*.

Gentlemen, &c.

I am come to tell you in plain *Proſe*, that I am a very great *Poet*: Dactyls and Spondees are familiar to me. Many of the moſt elegant Productions of the Age are indebted to me for no ſmall Share of their Merit, I ſmooth their rugged Numbers, and ſupply their Vacancies of Wit.

Sometimes I'm a *Fidler*—and conſequently, ſomebody of Note. I open the Balls at Court, and lead up the ragged Regiment of *St. Giles's*. Your *Giardini's*, and your *Geminiani's* without me are leſs ſignificant than the poor blind Scraper of *Bedlam*. I preſide over your Concerts, and alway make *one* with the *four and twenty*.

In Phyſic more renowned than the High German Doctor: Let ſtupid Drones ſtudy — I practice. Without a Word of *Hyppocrates*; I have done Wonders — where the whole ſtiffrump'd Faculty have failed. It ſtands on Record that I have cured the Fever; and for a certain Diſtemper that ſhall be nameleſs, am a moſt amazing Specific.

As a Dancing Maſter, I as much excel the red-heeled *Petits Maitres* of the Age, as roaſt Beef and Plumb Pudding are beyond *ſoupe maigre les Grenovilles fricaſſee's*. Avaunt, ye Minuit-mongers! No more of your *Coupees* and your *Ballances!* I teach without the Clog of Rules, and my Pupils learn by Inſtinct. I have taken an awkward Bumpkin, without a Grain of Mercury in him, and led him like a tame Bear through all the Modes and Attitudes of dancing; thus realizing the Poet's Fiction and making Beaſts dance after me.

Nor do I want Activity myſelf as a Dancer: I have hopp'd you many a *Hornpipe* and *Rigadoon* upon the tight Rope.

I ſerved my Time with a *Sawyer*, and their I learnt—*See-Saw*. My Maſter was deſperately enamoured of Miſs *K——Gripes*, and uſed me as Spokeſman, I managed Matters ſo well with her, that many's the good Time, and often I have made the Slut's Guts wamble again. Offering once to ſalute her with greaſy Lips, the Nymph was ſtruck ſpeechleſs at the Affront; and my Maſter in a pet diſcarded poor *Pill-Garlic*.

(11) Ænigma 135, by *Jacobum Whitley, Hiſtrionem.*

Tho' more than twenty Eyes, I have indeed I cannot ſee;
Yet many more my Favour crave, than Health or Liberty.
I carry my Commiſſion where I deign to make a Shew,
Tho' ſpotted as the Leopard's Hair, my Skin's as white as Snow.
Curs'd by the Cully oft I am, tho' courted by the great;
Yet innocent as any Lamb, ſuch my ſiniſter State!
No more careſs'd when at the Play I grace the gorgeous Box,
Or ſit ſerene the total Day, as Wolf or wily Fox.
To give deſpairing Souls Content, or make a mighty Pother,
The Wit of Man could ne'er invent two Things like me and Brother.

An *Alphabetical Catalogue* of Contributors to this Diary.

The Fig. 1, 2, 3, &c, ſhewiug the Queſtions, the Numerical Letters i, ii, iii, &c. the Ænigmas each anſwered, &c.

AIſhmella, prop. 1 Ænig. Mr. Tho. Allen 10, 12 all Æ. but x. Calc. ☽ Ecl. Mr. Will. Beech. *Tiddeſwel* Fairs. Mr. Will. Bevil prop. 1 Q. an a Par. Mr. G. Clarke Butler, anſwered the Ænigmas in Verſe, prop. a Reb. & a Par. Mr. Steph. Brackſtone prop. 1 Æn. Mr. John Cheſter i. ii. iii. vi. vii. ix. propoſed i. Careleſs Jack, all but iii & x.

Calc. ☽ Ecl, Mr. John Dyke i. ii. iv. v. vi. vii. viii. prop. i. and 2 Rebuſes, Mr. Tim. Drury, 2, 3, 4, 8. i. ii. iv. v. vi. viii. ix. prop. 1 Q. and 1 Ænig. Mr. Luke Elſtob. jun. i. ii. iii. iv. vi. vii. viii. prop. i. Calc. ☽ Ecl. F. J. Mingle all but x. prop. i. Old G---d---n. nothing at all, Mr. John. Holroyd 2, 3, 8, 12, all but iii & x. Mr. Thomas Hare 3, 8, 13. ii. iii, iv, v, vi, vii, viii. prop. i. Æ and 1 Q. Mr. John Hall all Æ and all Qu. Mr. Matthew Johnſon; every Thing. Mr. Will. Ingram ſome Æ in Verſe. prop. 1. Mr. William Kingſtone all Æ and all Qu. prop. 1 Æ. 1 Qu . Mr. Chr. Maſon all Ænig. & prop. 2. Mr. Robert Marſh all but ix and x. prop. i. J. M. *Northampton*, ſome in Verſe. Mr. Thomas Moſs all Qu. and propoſed *one*, Mr. J. Randles pr. 1 Æn. * Mr. John Palmer ſome in Verſe, Mr. Alex. Rowe prop. 4. Qu. Mr. William Reeves, prop. 1. Qu. Mr. Jeremiah Roe, *Derby* Fairs. Mr. Mich. Rowland all in Verſe. Mr. William Smith all in Verſe, prop. 2, Mr. William Smith all Q but 11. Some in Verſe. Mr. John Thorpe Calc all the Ecl. Mr. Samuel Towndrow 8 prop. 2 Calc. all Ecl. Tabularius 9. 13. prop. i Æ. Mr. Iſaac Tarrat, all in Verſe, prop. 1. Mr. Charles Underwood all in Verſe, prop. 1. Mr. John Webſter all but ix, x. prop. 1. Mr. Robert Waddington iii. Calc. all Ecl. Mr. Jacobum Whitley, *Hiſtrionem* prop. 1 Ænig.

FINIS.

The LADIES' *Diary*:
OR
Voman's ALMANACK,
or the YEAR of our LORD 1758.

g the Second after BISSEXTILE, or LEAP-YEAR.
aining New Improvements in ARTS and SCIENCES,
And many Entertaining PARTICULARS;
Adapted for the *Uſe* and *Diverſion* of the

FAIR-SEX.

g the Fifty-Fifth ALMANACK Publiſh'd of this Kind.

YE Happy FAIR, whom Sacred Tranſports fire,
Accept, propitious, what Your Selves inſpire:
For YOU the MUSE her kindeſt Influ'ence lends,
And SCIENCE wide its ample Bounds extends:
Alike your FORM and WIT reſiſtleſs charm,
With LOVE and VIRTUE ev'ry Boſom warm.

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TWO PENCE

Chronological NOTES for the YEAR 1758

Golden Number	11	Shrove-Tueſday	February 7
Cycle of the Sun	3	Eaſter-Day	March
Epact	20	Whit-Sunday	May
Roman Indiction	6	Trinity-Sunday	May
Dominical Letter	A	Advent-Sunday	Dec.

ECLIPSES in the YEAR 1758.

THERE will this Year be Six Eclipſes, Four of the S and Two of the Moon; whereof One of the Moon on will be Viſible to the Inhabitants of *Great-Britain.*

The *Firſt* is of the *Sun, Jan.* 9th. at 6 in the Evening, *Inviſibl*

The *Second* is a Viſible, and Total Eclipſe of the *Moon,* *January* 24th. ſome Calculations whereof are as follow.

☽ Ecl. *Jan.* 24th. in Morn		Beg. of Eclip.	Beg. Total Dark.	Mid. of Eclip.	End Total Dark	End of Eclip.	Digits Eclipſed.
		h. m.	h. m.	h. m.	h. m.	h. m.	d. m.
By Mr. *S. Towndrow,*	For *London,*	4 22	5 28	6 21	7 14	8 20	21° 25'
	Cheſterfield, Derbyſhire.	4 13	5 19	6 12	7 05	8 11	
By Mr. *W. Terrill,*	For *London,*	4 21	5 27	6 20	7 13	8 19	21° 30'
	Rudruth in *Cornwall.*	4 1	5 7	6 0	6 53	7 59	
By Mr. *J. Gutteridge,*	For *London,*	4 24	5 30	6 23	7 16	8 22	21° 32'
	Loughboro'	4 19	5 25	6 18	7 11	8 17	

The *Third* is of the *Sun, February* 8th. between 4 and 5 in t Morning, *Inviſible.*

The *Fourth* is of the *Sun, July* 4th. at 9 in the Morn. *Inviſibl*

The *Fifth* is of the *Moon, July* 20th. at 5 Afternoon, *Inviſibl*

The *Sixth* is of the *Sun, December* 30th. between 7 and 8 in t Morning, *Inviſible.*

⁂ Mr. *Charles Brent* obſerves (very juſtly) that thoſe Autho are miſtaken who affirm, That there can never happen more tha *Six* Eclipſes in one Year. Beſides thoſe mention'd above, he tak Notice of a ſmall *Solar Defect* of about half a Digit, on *Auguſt* 3 between 10 and 11 at Night; which no other Author has adverte to.—But whether the Errors of the beſt Tables extant, may not b ſufficient to render the Happening of *ſuch* an Eclipſe doubtful, w do not undertake to decide.

☞ All Contributors to this DIARY are deſired to ſend the Letters (Poſt paid) before the Beginning of *May,* Directed to t Author, at Mr. *Richard Hett's,* at *Stationers-Hall,* LONDON.

1758. January hath XXXI Days.

Laſt Quarter, 2d Day, 52 m. paſt 4 Aftern. New Moon, the 9th, 56 m. paſt 5 Aftern. Firſt Quarter, the 16th, 35m. paſt 9 Morn. Full Moon, the 24th, 27 m. paſt 6 Morn.	Sun enters ♒ 19th. 12 h. 2 m. Apparent Time.

1	A	1 S. aft. Chriſt. Circumciſ.	8	5	3	55	23	1	☽ riſes		21
2	M	[or, New-Year's-Day		5		55	22	56	Morn.		22
3	T			4		56		50	0	24	23
4	W			3		57		44	1	35	24
5	T	Old CHRIST-MASS-DAY		2		58		37	2	46	25
6	F	Epiphany : Twelfth Day		1		59		30	3	59	26
7	S			0	4	0		22	5	14	27
8	A	1 Sund. aft. Epip. *Lucian*	7	59		1		14	6	26	28
9	M			58		2		6	☽ ſets		29
10	T	Princeſs *Elizabeth* Born		57		3	21	58	5 A	9	1
11	W			56		4		48	6	28	2
12	T			55		5		38	7	50	3
13	F	*Hilary* [Begins		54		6		28	9	12	4
14	S	Oxford and Camb. Term		53		7		17	10	31	5
15	A	2 Sunday after Epip		51		9		6	11	47	6
16	M			50		10	20	55	Morn.		7
17	T	Old Twelfth-Day		49		11		43	1	6	8
18	W	*Priſca,* Martyr		48		12		31	2	13	9
19	T			46		14		18	3	21	10
20	F	*Fabian.* In eight Days of		45		15		5	4	25	11
21	S	*Agnes.* [St. Hilary 1 Ret.		44		16	19	52	5	25	12
22	A	Septuageſ. Sund. *Vincent*		42		18		38	6	18	13
23	M	Hilary Term Begins		41		19		24	7	6	14
24	T			40		20		10	☽ riſes		15
25	W	Converſion of St. PAUL		38		22	18	55	5 A	44	16
26	T			36		24		40	6	47	17
27	F	From the Day of St. Hil.		35		25		25	7	5	18
28	S	[in 15 Days, 2 Returns		33		27		9	8	56	19
29	A	Sexageſima Sunday		31		29	17	53	10	2	20
30	M	K. *CHARLES* I. Martyr'd		30		30		36	11	1	21
31	T			28		32		19	Morn.		22

Days	L. of D.		Day Inc		D.breaks		Sun Eaſt.		Tw.ends		C bef. S.		7Stars So.	
1	7	50	0	6	6	0	4	41	6	0	4	16	8 A	43
6		57		13	5	58		43		2	6	32		21
11	8	7		23		54		46		6	8	37	7	59
16		19		35		49		49		11	10	27		38
21		32		48		44		53		16	11	59		17
26		47	1	3		38		57		22	13	12	6	55

1758. February hath XXVIII Days.

Laſt Quarter, 1ſt Day, 41 m. paſt 9 Morn.
New Moon, 8th, 41 m. paſt 4 Morn.
Firſt Quarter, 14th, 45 m. paſt 10 Night
Full Moon, 23d, 55 m. paſt 1 Morn.

Sun enters ♓
18th. 2 h. 54 m.
Apparent Time.

M. D.	W. D.	Sundays, Holidays, &c.	Sun riſes	Sun ſets	Sun's Decl.	☽ riſes & ſets	☽'s Age.
1	W		7 27	4 33	17 2	0M 18	23
2	T	Purif. or, Candle-Maſs-Day	25	35	16 45	1 28	24
3	F	On the morrow of the Pur.	23	37	27	2 41	25
4	S	[3 Returns	21	39		3 53	26
5	A	Shrove-Sund. Quinquag.	20	40	15 51	4 59	27
6	M	[*Agatha*, Martyr	18	42	32	6 3	28
7	T	Shrove-Tueſday	16	44	14	6 54	29
8	W	Aſh-Wedneſday	15	45	14 55	☽ ſets	30
9	T	[4 Ret.	13	47	35	6 38	1
10	F	In 8 days of the Purificat.	11	49	15	8 1	2
11	S		9	51	13 57	9 22	3
12	A	1 S. in Lent. TERM Ends	7	53	35	10 40	4
13	M	Old Candle-Maſs-Day	5	55	17	11 58	5
14	T	*Valentine*, Bp. and Martyr	3	57	12 56	Morn.	6
15	W	Ember Week	1	59	36	1 6	7
16	T		6 59	5 1	15	2 14	8
17	F		58	2	11 54	3 16	9
18	S		56	4	33	4 12	10
19	A	2 Sunday in Lent	54	6	11	5 3	11
20	M		52	8	10 50	5 44	12
21	T		50	10	28	6 16	13
22	W		48	12	6	6 45	14
23	T		46	14	9 44	☽ riſes	15
24	F	St. MATTHIAS	44	16	22	6 48	16
25	S		42	18	0	7 53	17
26	A	3 Sunday in Lent	40	20	8 37	9 1	18
27	M		38	22	15	10 10	19
28	T		36	24	7 52	11 19	20

Days	L. of D.	Day incr	D. breaks	Sun Eaſt.	Tw. ends.	Clo bef. S.	7 Stars So.
1	9 6	1 22	5 31	5 4	6 29	14 12	6 A 32
6	24	40	23	9	37	40	11
11	42	58	15	15	45	46	5 51
16	10 1	2 17	6	20	54	35	32
21	20	36	4 57	26	7 3	4	13
26	40	56	48	32	12	13 19	4 54

1758. March hath XXXI Days.

Laſt Quarter, 2d, 56m. paſt 10 Night
New Moon, 9th, 46 m. paſt 2 Aftern.
Firſt Quarter, 16th, 29 m. paſt 2 Aftern.
Full Moon, 24th, 41 m. paſt 7 Night

Sun enters
20th. 3 h. 33
Apparent Tim

1	W	*David*, Abp. of *Minevia*	6	34	5	26	7	29	Morn.	
2	T			32		28		6	0	29
3	F			30		30	6	43	1	40
4	S			28		32		20	2	48
5	A	4 S. in Lent. Princeſs of		26		34	5	57	3	51
6	M	[*HESSE* Born		24		36		34	4	46
7	T	*Perpetua*		22		38		11	5	30
8	W			20		40	4	48	6	6
9	T			18		42		25	☽	ſets
10	F			16		44		1	6	56
11	S			14		46	3	38	8	19
12	A	5 Sunday in Lent. *Gregory*		12		48		14	9	41
13	M			10		50	2	50	10	56
14	T			8		52		27	Morn.	
15	W			6		54		3	0	7
16	T			4		56	1	39	1	13
17	F	St. *Patrick*		2		58		16	2	14
18	S	*Edward*		0	6	0	0	52	3	5
19	A	Palm-Sund. Ps. *Louiſa* Bo.	5	58		2		28	3	49
20	M	*Cutbbert*		56		4		4	4	26
21	T	*Benedict*		54		6	0N	19	4	55
22	W	Ox. & Cam. Terms End		52		8		43	5	21
23	T	Maundy-Thurſday		50		10	1	6	5	45
24	F	GOOD-FRIDAY		48		12		30	☽	riſes
25	S	LADY-DAY. Pr. *Ed.* B.		46		14		54	7	0
26	A	EASTER-DAY		44		16	2	17	8	9
27	M	Eaſter-Monday		43		18		41	9	18
28	T	Eaſter-Tueſday		41		19	3	4	10	29
29	W			39		21		27	11	39
30	T			37		23		51	Morn.	
31	F			35		25	4	14	0	27

Days	L. of D.		Day incr.		D. breaks		Sun Eaſt.		Tw. ends		Clo. bef. S.		7 S
1	10	52	3	8	4	43	5	36	7	17	12	45	4
6	11	12		28		32		42		28	11	38	
11		32		48		21		48		39	10	20	
16		52	4	8		1		55		49	8	54	3
21	12	12		28		0	6	1	8	0	7	25	
26		31		47	3	48		7		11	5	52	

1758. February hath XXVIII Days.

Laſt Quarter, 1ſt Day, 41 m. paſt 9 Morn.
New Moon, 8th, 41 m. paſt 4 Morn.
Firſt Quarter, 14th, 45 m. paſt 10 Night
Full Moon, 23d, 55 m. paſt 1 Morn.

Sun enters ♓
18th. 2 h. 54 m.
Apparent Time.

M. D.	W. D.	Sundays, Holidays, &c.	Sun riſes	Sun ſets	Sun's Decl.	☽ riſes & ſets	☽'s Age.
1	W		7 27	4 33	17 2	0M18	23
2	T	Purif.or,Candle-Maſs-Day	25	35	16 45	1 28	24
3	F	On the morrow of the Pur.	23	37	27	2 41	25
4	S	[3. Returns	21	39		3 53	26
5	A	Shrove-Sund. Quinquag.	20	40	15 51	4 59	27
6	M	[*Agatha*, Martyr	18	42	32	6 3	28
7	T	Shrove-Tueſday	16	44	14	6 54	29
8	W	Aſh-Wedneſday	15	45	14 55	☽ ſets	30
9	T	[4 Ret.	13	47	35	6 38	1
10	F	In 8 days of the Purificat.	11	49	15	8 1	2
11	S		9	51	13 57	9 22	3
12	A	1 S. in Lent. TERM Ends	7	53	35	10 40	4
13	M	Old Candle-Maſs-Day	5	55	17	11 58	5
14	T	*Valentine*, Bp. and Martyr	3	57	12 56	Morn.	6
15	W	Ember Week	1	59	36	1 6	7
16	T		6 59	5 1	15	2 14	8
17	F		58	2	11 54	3 16	9
18	S		56	4	33	4 12	10
19	A	2 Sunday in Lent	54	6	11	5 3	11
20	M		52	8	10 50	5 44	12
21	T		50	10	28	6 16	13
22	W		48	12	6	6 45	14
23	T		46	14	9 44	☽ riſes	15
24	F	St. MATTHIAS	44	16	22	6 49	16
25	S		42	18	0	7 53	17
26	A	3 Sunday in Lent	40	20	8 37	9 1	18
27	M		38	22	15	10 10	19
28	T		36	24	7 52	11 19	20

Days	L. of D.	Day incr	D. breaks	Sun Eaſt.	Tw. ends.	Clo bef. S.	7Stars So.
1	9 6	1 22	5 31	5 4	6 29	14 12	6 A 32
6	24	40	23	9	37	40	11
11	42	58	15	15	45	46	5 51
16	10 1	2 17	6	20	54	35	32
21	20	36	4 57	26	7 3	4	13
26	40	56	48	32	12	13 19	4 54

1758. March hath XXXI Days.

Laſt Quarter, 2d, 56m. paſt 10 Night
New Moon, 9th, 46m. paſt 2 Aftern.
Firſt Quarter, 16th, 29 m. paſt 2 Aftern.
Full Moon, 24th, 41 m. paſt 7 Night

Sun enters ♈
20th. 3 h. 33 m.
Apparent Time.

1	W	*David*, Abp. of *Minevia*	6 34	5 26	7 29	Morn.	21
2	T		32	28	6	0 29	22
3	F		30	30	6 43	1 40	23
4	S		28	32	20	2 48	24
5	A	4 S. in Lent. Princeſs of	26	34	5 57	3 51	25
6	M	*HESSE* Born	24	36	34	4 46	26
7	T	*Perpetua*	22	38	11	5 30	27
8	W		20	40	4 48	6 6	28
9	T		18	42	25	☽ ſets	29
10	F		16	44	1	6 56	1
11	S		14	46	3 38	8 19	2
12	A	5 Sunday in Lent. *Gregory*	12	48	14	9 41	3
13	M		10	50	2 50	10 56	4
14	T		8	52	27	Morn.	5
15	W		6	54	3	0 7	6
16	T		4	56	1 39	1 13	7
17	F	St. *Patrick*	2	58	16	2 14	8
18	S	*Edward*	0	6 0	0 52	3 5	9
19	A	Palm-Sund. Ps. *Louiſa* Bo.	5 58	2	28	3 49	10
20	M	*Cuthbert*	56	4	4	4 26	11
21	T	*Benedict*	54	6	0N19	4 55	12
22	W	Ox. & Cam. Terms End	52	8	43	5 21	13
23	T	Maundy-Thurſday	50	10	1 6	5 45	14
24	F	GOOD-FRIDAY	48	12	30	☽ riſes	15
25	S	LADY-DAY. Pr. *Ed.* B.	46	14	54	7 0	16
26	A	EASTER-DAY	44	16	2 17	8 9	17
27	M	Eaſter-Monday	43	18	41	9 18	18
28	T	Eaſter-Tueſday	41	19	3 4	10 29	19
29	W		39	21	27	11 39	20
30	T		37	23	51	Morn.	21
31	F		35	25	4 14	0 27	22

Days	L. of D.	Day incr.	D. breaks	Sun Eaſt.	Tw. ends	Clo. bef. S.	7 Stars So.
1	10 52	3 8	4 43	5 36	7 17	12 45	4 A 43
6	11 12	28	32	42	28	11 38	25
11	32	48	21	48	39	10 20	7
16	52	4 8	11	55	49	8 54	3 48
21	12 12	28	0	6 1	8 0	7 25	30
26	31	47	3 48	7	11	5 52	12

1758. April hath XXX Days.

Laſt Quarter, the 1ſt, 49 m. paſt 8 Morn. New Moon, 8th, 36 m. before 1 Morn. Firſt Quarter, 15th, 10 m. paſt 8 Morn. Full Moon, 23d, 40 m. paſt 10 Morn. Laſt Quarter, 30th, 46 m paſt 3 Aftern.	Sun enters ♉ 19th. 16h. 38 m. Apparent Time.

1	S		5	33	6	27	4	37	1M	52	23
2	A	1 Sun. aſt. Eaſt. Low-Sund.		31		29	5	0	2	48	24
3	M	*Richard*, Bp. of *Chich*.		29		31		23	3	35	25
4	T	St. *Ambroſe*, Bp. of *Mil.*		27		33		46	4	12	26
5	W	Old LADY-DAY. Ox.		25		35	6	9	4	45	27
6	T	[& Cam. Terms Beg.		23		37		32	5	13	28
7	F			21		39		55	5	38	29
8	S			19		41	7	17	☽ ſets		30
9	A	2 Sunday after Eaſter		17		43		40	8	39	1
10	M	From the Day of Eaſter in		15		45	8	2	9	54	2
11	T	[15 Days 1 Return		13		47		24	11	6	3
12	W	Eaſter TERM Begins		11		49		46	Morn.		4
13	T			9		51	9	8	0	10	5
14	F			7		53		29	1	8	6
15	S			5		55		51	1	55	7
16	A	3 Sunday after Eaſter		3		57	10	12	2	35	8
17	M	From the Day of Eaſter in		1		59		33	3	7	9
18	T	[3 Weeks, 2 Returns	4	59	7	1		54	3	34	10
19	W	*Alphage*.		57		3	11	15	3	57	11
20	T			55		5		35	4	18	12
21	F			54		6		56	4	38	13
22	S	[GEORGE, Martyr		52		8	12	16	4	58	14
23	A	4 Sunday after Eaſter. St.		50		10		36	☽ riſes		15
24	M	From Eaſt. in 1 Mon. 3 Ret.		49		11		56	8	27	16
25	T	St. MARK, Evangeliſt		47		13	13	15	9	38	17
26	W	Duke of *Cumberland* Born		45		15		34	10	49	18
27	T			43		17		54	11	55	19
28	F			41		19	14	13	Morn.		20
29	S			40		20		32	0	52	21
30	A	5 Sun. aft Eaſt. Rog. Sun.		38		22		51	1	42	22

Days	L. of D.		Day inc.		D. breaks		Sun Eaſt		Tw. ends		C. bef. S		7 Stars So.	
1	12	55	5	11	3	32	6	15	8	28	4	0	2 A	50
6	13	15		31		20		21		40	2	28		32
11		34		50		5		27		55	1	2		13
16		53		9	2	53		33	9	7	0 A	16	1	55
21	14	12		28		39		39		21	1	25		36
26		30		46		23		44		37	2	23		17

1758. May hath XXXI Days.

New Moon, the 7th, 1 m. past 10 Morn.
First Quarter, 15th, 28 m. past 2 Morn.
Full Moon, the 22d, 38 m. past 10 Morn.
Last Quarter, 29th, 47 m. past 8 Night

Sun enters ♊
20th. 17 h. 35 m
Apparent Time.

1	M	St. *Phil.* & *Jac.* From Day	4	36	7	24	15	9	2	22	23
2	T	[of East in 5 Weeks, 4 Ret.		34		26		27	2	55	24
3	W	*Invent.* of ✝		32		28		44	3	22	25
4	T	CHRIST's Ascen. Holy Th.		31		29	16	2	3	46	26
5	F			30		30		19	4	10	27
6	S			28		32		36	4	34	28
7	A	6 Sunday after Easter		27		33		52	☽	sets	29
8	M	T E R M Ends		25		35	17	9	8	12	1
9	T			23		37		25	10	1	2
10	W	[End		22		38		40	11	2	3
11	T	**Oxford** & **Camb.** Terms		20		40		56	11	54	4
12	F	Old May-Day		19		41	18	11	Morn.		5
13	S			17		43		26	0	38	6
14	A	Whit-Sunday		15		45		41	1	13	7
15	M	Whit-Monday		14		46		56	1	42	8
16	T	Whit-Tuesday		12		48	19	10	2	6	9
17	W	Ember-Week		11		49		23	2	27	10
18	T			9		51		36	2	46	11
19	F	*Dunstan*, A.B.		8		52		49	3	6	12
20	S			6		54	20	2	3	24	13
21	A	Trinity Sunday. [Ret.		5		55		14	3	40	14
22	M	On Mor. of Holy Trin		3		57		26	☽	rises	15
23	T	[and **Cam.** Terms Beg.		2		58		38	8	38	16
24	W	Pr. *Fred. Wil.* Born. **Ox**		1		59		49	9	48	17
25	T	*Corpus Christi.*		0	8	0	21	0	10	50	18
26	F	Trinity T E R M Begins	3	59		1		11	11	43	19
27	S	Venerable *Bede*		58		2		21	Morn.		20
28	A	1 Sunday after Trinity		57		3		31	0	22	21
29	M	K. *Charles* II. Restauration		56		4		40	0	58	22
30	T			55		5		49	1	27	23
31	W			54		6		48	1	[illegible]	24

Days	L. of D.		Day Inc.		D. breaks		Sun East		Tw. ends		☾ alt. S		Stars ☉	
1	14	48	7	4	2	4	6	50	9	56	3	8	0 A	58
6	15	5		21	1	51		55	10	31		41		39
11		21		37		29	7	0		34		59		20
16		36		52		6		4		57	4	2		
21		50	8	6	0	30		8	11	40	3	51	11 M	41
26	6	1		19	NoNight			12	NoNight		2	26		21

1758 June hath XXX Days.

New Moon, 5th, 36 m paſt 8 Night
Firſt Quarter, 13th, 59 m paſt 7 Aftern.
Full Moon, 21ſt, 21 m paſt 8 Morning
Laſt Quarter, 28th, 20 m. paſt 1 Morn.

Sun enters ♋ 21ſt, 2 h. 36 m. Apparent Time.

1	T	*Nicom.* Pr. & Martyr	3	52	8	8	22	[illegible]	2	16	25
2	F			51		9		14	2	37	26
3	S			50		10		21	3	0	27
4	A	2 S. aft. Trin. P. of *Wales*		49		11		28	3	27	28
5	M	*Boniface* [Born		48		12		35	☽	ſets	29
6	T			48		12		41	8	47	1
7	W			47		13		48	9	43	2
8	T			47		13		54	10	30	3
9	F			46		14		59	11	9	4
10	S	Prs. *Amel.* & *Carol.* Born		46		14	23	4	11	40	5
11	A	3 S. aft. Trin. S. Barnab.		45		15		8	Morn.		6
12	M			45		15		12	0	7	7
13	T			44		16		15	0	29	8
14	W			44		16		18	0	49	9
15	T			44		16		21	1	7	10
16	F			43		17		23	1	25	11
17	S	St. *Alban*		43		17		26	1	45	12
18	A	4 Sunday after Trinity		43		17		27	2	7	13
19	M		Long. Day in Lat. 51° 32′		16 h. 35 m. 6 ſec. allowing		9 m. 54 ſec. for Refraction.	28	2	35	14
20	T	*Edward*						29	3	9	15
21	W	Longeſt Day						29	☽	riſes	16
22	T	King GEORGE II. Inaug.						28	9	32	17
23	F							28	10	18	18
24	S	St. John B. Midſum. Day		43		17		27	10	56	19
25	A	5 Sunday after Trinity		43		17		26	11	27	20
26	M	King GEORGE II. Procl.		44		16		24	11	53	21
27	T			44		16		23	Morn.		22
28	W			44		16		20	0	17	23
29	T	St. Peter and St. Paul		45		15		16	0	37	24
30	F			45		15		13	1	0	25

Days	L. of D		Day incr.			Sun Eaſ			Clo. aft. S		7 Stars So.	
1	16	16	8	32	No real Night but conſt. Day-light or Twil.	7	16	No real Night but conſt. Day-light or Twil.	2	43	10M	56
6		24		40			18		1	54		36
11		30		46			19		0	58		16
16		34		49			20		0 bef.	4	9	55
21		35		51			20		1	7		34
26		37	decr.	2			20		2	12		14

1758. July hath XXXI Days.

New Moon, 5th, 43 m. paſt 8 Morn.
Firſt Quarter, 13th, 5 m. paſt Noon
Full Moon, 20th, 34 m. paſt 4 Morn.
Laſt Quarter, 27th. at 4 m. paſt 7 Morn

Sun enters ♌
22d 7 h. 35 m.
Apparent Time.

1	S		3	46	8	14	23	9	1	25	26
2	A	**6 S. aft. Tr.** Viſitation of		46		14		5	1	52	27
3	M	[B. V *Mary*		47		13		0	2	25	28
4	T	*Martin*, Biſhop		47		13	22	55	3	4	29
5	W	Old MIDSUMMER-DAY		48		12		49	☽ ſets		30
6	T			49		11		4	9	2	1
7	F			50		10		3[illegible]	9	37	2
8	S			50		10		30	10	4	3
9	A	**7 Sunday after Trinity**		51		9		23	10	28	4
10	M			52		8		16	10	48	5
11	T			53		7		9	11	6	6
12	W			54		6		0	11	25	7
13	T			55		5	21	52	11	44	8
14	F			56		4		43	Morn.		9
15	S	*Swithin*, B. of *Wincheſter*		57		3		34	0	5	10
16	A	**8 Sunday after Trinity**		58		2		24	0	29	11
17	M			59		1		13	0	58	12
18	T		4	0		0		3	1	35	13
19	W			2	7	58	20	52	2	24	14
20	T	*Margaret*.		3		57		42	☽ riſes		15
21	F			4		56		30	8	50	16
22	S	*Magdalen*. **Ps. C. Mat. B.**		6		54		18	9	25	17
23	A	**9 Sunday after Trinity**		7		53		6	9	52	18
24	M			8		52	19	54	10	18	19
25	T	**St. JAMES, Apoſtle**		10		50		41	10	40	20
25	W	St. *Anne*, Mother of V. *M.*		11		49		28	11	3	21
27	T			13		47		14	11	27	22
28	F			14		46		0	11	53	23
29	S			15		44	18	46	Morn.		24
30	A	**10 Sund. aft. Trin.** Dog-		17		43		32	0	25	25
31	M	[Days Begin		18		42		17	1	1	26

Days	L. of D		Day dec.		D. breaks		Sun Eaſt.		Tw. ends.		Clo. bef. S.		7 Stars So.	
1	16	29	0	6			7	19			3	12	8 M	53
6		23		12	No real			18	No real		4	7		33
11		15		20				16				52		12
16		5		30	Night.			13	Night.		5	27	7	52
21	15	53		48				9				49		32
26		39		56	0	48		5	11	8		57		12

1758. Auguſt hath XXXI Days.

New Moon, the 3d, 58 m. paſt 10 Night Firſt Quarter, 12th, 24 m. paſt 2 Morn. Full Moon 19th, 43 m. before 1 Morn. Laſt Quarter, 25th, 32 m. paſt 3 Aftern.	*Sun* enters ♍ 22d. 19 h. 52 m. Apparent Time.

1	T	Lammas-Day	4	19	7	41	18	2	1	46	27
2	W			21		39	17	48	2	37	28
3	T			22		38		32	☽ ſets		29
4	F			24		36		16	8	6	1
5	S			25		35		0	8	31	2
6	A	11 Sun. aft. Tr. *Transfig.*		27		33	16	43	8	52	3
7	M			28		32		26	9	12	4
8	T			30		30		9	9	31	5
9	W			32		28	15	52	9	45	6
10	T	St. *Laurence*		34		26		35	10	9	7
11	F	Princeſs *Auguſta* Born		35		25		17	10	31	8
12	S	Old Lammas-Day		37		23	14	59	10	57	9
13	A	12 Sunday after Trinity		39		21		40	11	30	10
14	M			40		20		22	Morn.		11
15	T	*Aſſumpt. B. Virgin* Mary		42		18		3	0	12	12
16	W			44		16	13	45	1	7	13
17	T			46		14		26	2	13	14
18	F			47		13		7	3	30	15
19	S			49		11	12	47	☽ riſes		16
20	A	13 Sunday after Trinity		51		9		27	8	22	17
21	M			53		7		7	8	40	18
22	T			55		5	11	47	9	9	19
23	W			57		3		27	9	34	20
24	T	St. Bartholomew, Apoſtle		59		1		6	10	0	21
25	F		5	1	6	59	10	45	10	30	22
26	S			2		58		25	11	6	23
27	A	14 Sunday after Trinity		4		56		3	11	48	24
28	M	*Auguſtine*		6		54	9	42	Morn.		25
29	T	St. John Baptiſt *Beheaded*		8		52		21	0	57	26
30	W			10		50	8	59	1	33	27
31	T			12		48		38	2	34	28

Days	L. of D.		Day dec.		D.breaks		Sun Eaſt		Tw.ends		C.bef. S.		7 Stars So.	
1	15	22	1	13	1	23	7	0	10	36	5	48	6 M	48
6		6		29		43	6	55		15		22		29
11	14	48		45	2	1		50	9	57	4	43		10
16		32	2	3		19		45		40	3	51	5	51
21		14		21		34		39		25	2	45		32
26	13	55		40		49		34		10	1	26		14

1758. September hath XXX Days.

New Moon, the 2d, 53 m. paſt 2 Aftern.
Firſt Quarter, 10th, 4 m. paſt 3 Aftern.
Full Moon, the 17th, 13 m. paſt 8 Morn.
Laſt Quarter, 24th, 57 m. paſt 3 Morn.

Sun enters ♎
22d. 16 h. 4 m
Apparent Time

1	F	*Giles*, Abbot [O. S	5	14	6	46	8	16	3	39
2	S	LONDON Burnt in 1666		16		44	7	54	☽ ſets	
3	A	15 Sunday after Trinity		17		43		32	7	24
4	M			19		41		10	7	43
5	T			21		39	6	47	8	2
6	W			23		37		25	8	21
7	T	Dog-Days End		25		35		2	8	43
8	F	*Nativity of B. V.* Mary		27		33	5	40	9	[illegible]
9	S			29		31		17	9	35
10	A	16 Sunday after Trinity		31		29	4	54	10	13
11	M			33		27		31	11	[illegible]
12	T			35		25		8	11	59
13	W			37		23	3	45	Morn.	
14	T	*Holy-Rood Day*		39		21		22	1	10
15	F			41		19	2	59	2	31
16	S			43		17		36	3	55
17	A	17 Sunday after Trinity		45		15		13	☽ riſes	
18	M	[*Lambert*, Biſhop		47		13	1	50	7	17
19	T			49		11		27	7	42
20	W	Ember Week		51		9		3	8	8
21	T	St. MATTHEW, Apoſtle		53		7	0	30	8	38
22	F			55		5		17	9	12
23	S			57		3	0	S 8	9	52
24	A	18 Sunday after Trinity		59		1		30	10	41
25	M	*Equal Day and Night*	6	1	5	59		54	11	35
26	T	*Cyprian*		3		57	1	17	Morn.	
27	W			5		55		41	0	36
28	T			7		53	2	4	1	40
29	F	St. MICHAEL.		9		51		28	2	45
30	S			11		49		51	3	49

Days	L. of D.		Day dec.		D. breaks		Sun Eaſt.		Tw. ends		Clo. aft. S.		7 Sta
1	13	32	3	3	3	6	6	7	8	53	0	20	4 M
6		14		21		20		21		39	1	56	
11	12	54		41		33		14		25	3	36	
16		34	4	1		44		8		15	5	22	3
21		14		21		55		2		4	7	5	
26	11	54		41	4	6	5	56	7	52	8	48	

1758. October hath XXXI Days.

New Moon, 2d. 42 m. paſt 7 Morn. Firſt Quarter, 10th, 59 m. paſt 1 Morn. Full Moon, 16th, 8 m. paſt 5 Night Laſt Quarter, 23d, 22 m. paſt 8 Night	Sun enters ♏ 22d. 23 h. 39 m. Apparent Time.

1	A	19 S. aft. Tr. *Remigius*, B.	6 12	5 48	3 15	4 56	29
2	M		14	46	38	☽ ſets	30
3	T		16	44	4 1	6 36	1
4	W		18	42	24	6 57	2
5	T		20	40	47	7 19	3
6	F	*Faith*, Virgin and Martyr	22	38	5 11	7 46	4
7	S		24	36	34	8 20	5
8	A	20 Sunday after Trinity	26	34	57	9 2	6
9	M	St. *Dennis*	28	32	6 20	9 55	7
10	T	Old Mich. Day. Ox. and	30	30	43	11 0	8
11	W	[Camb: Terms Begin	32	28	7 6	Morn.	9
12	T		34	26	28	0 14	10
13	F	*Edward*, King and Martyr	36	24	50	1 36	11
14	S		38	22	8 13	2 59	12
15	A	21 Sunday after Trinity.	40	20	35	4 23	13
16	M		42	18	57	☽ riſes	14
17	T	*Etheldred*, Virgin	44	16	9 20	6 14	15
18	W	St. LUKE, Evangeliſt	46	14	42	6 41	16
19	T		48	12	10 4	7 14	17
20	F		50	10	26	7 52	18
21	S		52	8	47	8 37	19
22	A	22 S. aft. Tr. K. Geo. II.	54	6	11 8	9 31	20
23	M	[Crown'd	56	4	30	10 32	21
24	T		58	2	51	11 35	22
25	W	*Criſpin*	7 0	0	12 11	Morn.	23
26	T		2	4 58	32	0 40	24
27	F		4	56	52	1 46	25
28	S	S. Simon *and* S. Jude, Ap.	6	54	13 12	2 51	26
29	A	23 Sunday after Trinity	7	53	32	3 55	27
30	M		9	51	52	5 3	28
31	T		11	49	14 12	5 10	29

Days	L. of D	Day dec.	D. breaks	Sun Eaſt.	Tw. ends	Clo. aft. S.	Stars So.
1	11 36	4 59	4 18	5 50	7 42	10 16	3 M 5
6	16	5 19	29	44	31	11 56	2 47
11	10 56	39	39	37	21	13 16	28
16	36	59	49	31	11	14 25	9
21	17	6 18	58	25	1	15 19	1 51
26	9 57	37	5 7	19	6 [illegible]	15 55	[illegible]

1758. November hath XXX Days.

New Moon, 1ſt, 27 m. before 1 Morn Firſt Quarter, 8th, 27 m. paſt 11 Morn. Full Moon, 15th, 49 m. paſt 3 Morn. Laſt Quarter, 22d, 9 m. paſt 4 Aftern. New Moon, 30th, 34 m. paſt 4 Aftern.	*Sun* enters ♐ 21ſt, 19 h. 30 m. Apparent Time.

1	W	All Saints	7	12	4	48	14	31	5	28	30
2	T	Ps. of *Orange* B. All Souls		14		46		50	5	53	1
3	F	On the mor. of All Souls		15		45	15	9	6	24	2
4	S	[1 Ret		17		43		28	7	4	3
5	A	24 S. aft. Tr. Powder-Plot,		19		41		46	7	54	4
6	M	Mic. TermBeg. [1605, *O.S.*		21		39	16	5	8	53	5
7	T	Pr. *Henry Frederick* Born		23		37		23	10	2	6
8	W			25		35		40	11	19	7
9	T	Lord-Mayor's D. at *Lond.*		27		33		57	Morn.		8
10	F	King GEORGE II. Born		29		31	17	14	0	39	9
11	S	St. *Martin*		30		30		31	2	0	10
12	A	25 Sun. aft. Trin. On the		31		29		47	3	23	11
13	M	[mor. of St. *Martin*, 2 Ret.		33		27	18	3	4	46	12
14	T	*Britius*, Biſhop		35		25		19	6	8	13
15	W	*Macbutus*, Biſhop		36		24		34	☽ riſes		14
16	T			38		22		49	5	44	15
17	F	*Hugh*, Biſhop of *Lincoln*		39		21	19	4	6	25	16
18	S	In 8 days of St. *Martin*,		40		20		19	7	15	17
19	A	26 S. aft. Trin. [3 Ret.		42		18		34	8	14	18
20	M	*Edmund*, King and Martyr		43		17		47	9	18	19
21	T			45		15	20	1	10	22	20
22	W	*Cecilia*. Old Martinmas-Day		47		13		14	11	28	21
23	T	St. *Clement*		48		12		26	Morn.		22
24	F	[days of S. *Martin*, 4 Ret.		49		11		38	0	33	23
25	S	Pr. *Wil. Hen.* Born. In 15		50		10		50	1	39	24
26	A	27 Sunday after Trinity		51		9	21	1	2	4	25
27	M			52		8		12	3	52	26
28	T	Michaelmas TERM Ends		53		7		23	4	58	27
29	W			54		6		33	6	8	28
30	T	S. *And.* Ps. Dow. *Wales* B.		56		4		43	☽ ſets		29

Days	L. of D.		Day dec.		D. breaks		Sun Eaſt.		Tw. ends.		Clo. aft S		Stars So	
1	9	36	6	59	5	16	5	13	6	44	16	14	1 M	9
6		18	7	17		23		7		37		7	0	49
11		0		35		30		2		30	15	42		29
16	8	44		50		36	4	57		24	14	54		8
21		30	8	5		42		53		13	13	46	11	43
26		18		17		48		49		12	12	18		2

All the ENIGMA's *anſwer'd in a* Card-Meſſage.

The *Lady Diaria* her *Compliments* ſends
To each SPARK, and TOAST,—and to all her good Friends; 1, 3
Let's them all know ſhe's well, who about her enquire,
But in *Winter* the FROST keeps her much by the FIRE, 10
And quite cloſe at *Home*, like a *Bird* in her NEST, 7
Where her fine Silver TEA-KETTLE waits on each *Gueſt*— 2
That, in Summer ſhe's gay—wears a very ſmart Hat;
Like a CURTAIN ſhe's flounc'd *A-la-mode*—and all that: 6
To *Market* ſhe goes, in a houſewifely Fit,
To buy CHEESE and EGGS, and ſome Meat for the SPIT: 4, 5, 9
She heeds not what *Names*, ſome while WHISPERERS give her; *Prize.*
She is at a RIDDLE as witty as ever. 8

Samuel Bentley.

All the ÆNIGMA's *anſwer'd by* Mr. John Stewart *of* Oxford, *to his Friend* J. L—ds—— "*Docti Indoctique Scribimus.*"

I.

Thou ſprightly SPARK, who gay in Youth 1
Lov'dſt CHEESE, a TOAST and Ale, 3, 4
Or o're the TEA would'ſt chatter Truth 2
And tell a merry Tale:

II.

Friendly to all, to ev'ry Man
Good natur'd, kind and free,
Wou'dſt SPIT the Beef, or Verſes ſcan, 5
A BIRD'S-NEST ſeek — could ſee: 7

III.

In hoary FROST with EGG in Wine, 10, 9
Can'ſt make thy Stomach warm:
WHISPER my Friend, the Prize is thine, *Prize.*
Since now the CURTAIN's drawn. 6

All the ÆNIGMA's *anſwer'd by* Mr. W. BAYLEY.

A *Spark*, *Tea-Kettle*, *Cheeſe*, and *Toaſt*, 1, 2, 4, 3
Spit, *Curtain*, *Eggs*, *Bird's-Neſt*, and *Froſt*; 5, 6, 9, 7, 10
Thus I th' *Ænigma*'s fairly tell, 8
And in a *Whiſper* bid farewell. *Prize.*

All the ÆNIGMA's *anſwer'd by* THISBE.

The CURTAIN drawn, *Doll* felt in Bed 6
A FROSTY Morn, and ſcratcht her Head; 10
The Cold but ſerv'd t'inflame her Mettle,
And, curſe! ſhe cry'd, the vile TEA-KETTLE: 2
Down Stairs ſhe hurries in the Dark,
With Flint and Steel procures a SPARK; 1
The willing Match receives the Flame,
And ſoon communicates the ſame.

Then o'er the comfortable Blaze,
She ty'd her Hoſe and lac'd her Stays,
The Kettle in an Hour at moſt
Is ready to attend the TOAST. 3.
The Ladies now at Tea are found,
Each Neighbour's Failing WHISPER'd round. *Prize.*
Warm from the NEST, next *Doll* produces 7.
Some new-laid EGGS, for various Uſes. 9.
See on the SPIT an Hare is turning, 5.
The Sport of Numbers Yeſter-morning;
At Table *now*; and if you pleaſe,
Conclude the Meat with Grace and CHEESE. 4.

All the Ænigmas anſwered by *Cælia*.

A SPARK from his NEST comes bawling, what TEA! 1. 7. 2.
Cheſhire CHEESE or a Cut from the SPIT is for me. 4. 5.
When full as an EGG I could eat all your TOAST; 9. 3.
No Subſtance in that like good *boil'd* and *roaſt*.
You *Ladies* are RIDDLES, your Meanings ne'er known; 8.
What chiefly you covet, you chiefly diſown:
With ICE-*Creams* and *Slip-Slops* you make a ſtrange Fuſs, 10.
But the CURTAIN once drawn, you can *tipple* like us. 6.
Of further Impert'nence, a *Lady* in Fear,
Juſt WHISPER'd him ſoftly, theſe Words in his Ear, *Prize.*
You own, Sir, when wrong, we've Grace not to ſhow it;
You eat like a Beaſt, and have Front to avow it.

All the Ænigmas anſwered by *Legiſta*.

One Morn' as fair *Belinda* was in Bed,
Her Maid the CURTAIN drew, and WHISP'RING ſaid, 6. *Prize.*
Madam, be pleas'd to riſe, Sir John's below
With BIRD's-NEST Wig all FROSTed like a Beau, 7. 10.
A SPIT-like Sword hangs down behind his Legs, 5.
His Errand's Love, as ſure as EGGS are Eggs. 9.
In the beſt Parlour I have light the FIRE, 1.
The KETTLE boils; the Tea-pot you admire, 2.
The Cups and Saucers are in Order ſet;
A butter'd TOAST I inſtantly will get. 3.
The Lady anſwer'd, *Abigail*, you ſpeak
In RIDDLES ſure; my Compliments pray make 8.
To good Sir John, and tell him I ſhall wait
On him forthwith; and ſee his Man you treat
With CHEESE and *Ham* and whate'er elſe he'll eat. 4.

All the Ænigmas anſwered by Mr. *J. Webſter*.

With Plenty of * ROAST, good CHEESE, and ſome TOAST, 5. 4. 3.
Laſt Chriſtmaſs I din'd an old Vicar,
His Limbs being FROZE, from Table we roſe, 10.
Drank Bumpers of humming ſtrong Liquor.
The Strength of the Liquor ſoon ſeiz'd on the Vicar,
He offer'd to put forth a Song;

---

* Jack-ſpit.

But could not ſpeak plain, he had FIRED his Brain: 1.
Your PRIZE was made known by his Tongue. 8.
He burned his HAT, and eke his Cravatt, 6.
Then kneel'd down and offer'd to pray;
He WHISPER'd and ſplutter'd, and fain would have utter'd, *Prize.*
But D—v—l a Word could he ſay.
In this merry Mood, then Homeward he rode,
Securely wrap'd up in his Gown:
But when he came thither, no one could tell whether,
His Breeches were yellow or brown.
As with th' Yolk of EGGS, beſmear'd were his Legs; 9.
A Spectacle—, each one admir'd:
His Wife, with Career, cry'd out, who is there?
You Jade, "*I'm a Vicar inſpir'd.*"
Oh! Sir, I'm ſurpriz'd to ſee you diſguis'd!
With that—he began for to kick her;
B'ing excellent Metal, ſhe catch'd up th' TEA-KETTLE 2.
And deſp'rately mauled the *Vicar.*
Her Gueſts one and all, then left off their Ball,
('Till then they'd been merry with Fiddles)
He went to his NEST, but poorly did reſt:
So, Ladies, adieu to your RIDDLES.

All the Ænigmas anſwered, in a Miſtreſs's ſcolding of her Maid.

Near Eight o'Clock, and not one *Spark* of FIRE! 1.
I tell thee, *Doll*, thou wilt my Patience fire.
When will the KETTLE boil—the TOAST be made? 2. 3.
No *Breakfaſt* yet this Hour—you ſhameleſs Jade!
Snug as an EGG within your feather'd NEST, 9. 7.
The FROST you feel not—There you take your Reſt. 10.
Your CURTAINS, Slut, I'll ſurely take away, 6.
And then perhaps you'll ſee the Riſing Day.
At Night your nimble *Tongue* runs like a *Fiddle,*
About ſome ſimple *Song* or puzzling RIDDLE: 8.
WHISP'RING with all roving Lads you meet, *Prize.*
At ev'ry Corner of the publick Street.
When will the CHEESE be done you idle Chit? 4.
Not till the Mutton's ready for the SPIT. 5.
But for your idle Pains, as I'm a Sinner,
You *Jade* you ſhall not taſte a Bitt of Dinner.

Thomas Corbett.

All the Ænigmas anſwered in a Deſcription of Winter in the Country.

Now *Winter* ſpreads around his gloomy Sway:
E'en Things inanimate his Power obey.
Now Nature's beauteous Face is veil'd with Snow;
Or bound with FROST; keen Winds impetuous blow, 10.
See SPARKling *Pendants* thick impearl the Lair: 1.
Bright as the *Gems* that grace the *Britiſh Fair.*
Mute are the feather'd Choirs.—Yet Heav'n, how kind!
Who gentle Spring to form their Neſts aſſign'd;

When ſoft Favonius WHISPER's thro' the Trees, *Prize.*
And huſh'd in Silence ſleeps each louder Breeze;
E'en midſt the Rigours of inclement Skies
Their little Wants with tender Care ſupplies.
At Cloſe of Day, ſee *Roger* at his Eaſe,
Regale himſelf on EGGS, or TOASTED CHEESE. 9. 3. 4.
What tho' no Silver KETTLE grace his Board; 2.
Nor SPIT is cloath'd with Dainties for it's Lord; 5.
Tho' ſilken CURTAIN none his Bed ſurround; 6.
His Food refreſhes, and his Sleep is ſound.
Or ſee with ſmiling Looks, the cheerful *Sire*
'Mid' his Domeſtics round the ſocial Fire;
When Prudence o'er their harmleſs Mirth preſides;
And Truth unblemiſh'd ev'ry Action guides;
There too perhaps DIARIA welcome finds, 8.
Gives Pleaſure, and improves ingenious Minds.
At Eve of Life, thus grant me, Heav'n! a Mind
Content with little, cheerful, and reſign'd. *Calophilus.*

All the Ænigmas anſwered, in *Britannia's* Soliloquy, leaning on the Ruins of a Fortification.

The *Goddeſs* in a mournful Tale,
Thus WHISPER'd from beneath her VAIL; *Prize.* 6.
Can't this, **Britannia*, rouze thine *Ire*!
Inglorious Sons, degen'rate FIRE! 1.
My former *Heroe's* Toil, and Pains
Were ne'er atchiev'd thro' FROZEN Veins. 10.
No high *Ragouts*, or pamper'd Food
Relax'd their Nerves, debauch'd their Blood:
Their *Sex* no RIDDLE did appear; 8.
Like *Men* they fought, *real Men* they were
The puny *Off-ſpring* chiefly boaſt
Of dire Campaigns o'er TEA and TOAST, 2, 3.
And center their heroic Might
In mock Deſigns, a SPIT head Fight 5.
" Their dreadful Brows ſupport for
" Creſt
" A grand *Toupee* like curious NEST 7.
" Of flutt'ring Bird,—I humbly beg
" The Skull may repreſent an EGG: 9.
" But Fear, in moſt, the Shell af-
" fords,
" Inſtead of Brains, a Lump of
" CURDS." 4.
French Johnſon.

* Pointing to the Breach.

An Anſwer to all the Ænigmas, in an Epiſtle from the Country, to a Friend in Town.

Come taſte with me, my Friend, the rural Joys,
Remote from Hurry, Foppery, and Noiſe!
Leave Balls, and Routs, and Operas to the gay,
The gaudy, flutt'rings *Inſects* of a Day,
Who tread the Stage of Life in giddy round,
Purſuing Happineſs that's never found.
Here let us view well-order'd Nature's Frame,
UNRIDDLE whence her awful Wonders came, 8.
Through all, conſpicuous Marks of Wiſdom ſhine,
That plainly prove the forming Hand divine;
Mark how yon lucid SPARKLING LAMPS above 1, 2.
Thro' Heav'n's ethereal Road in Order move;
Sun, Moon, and Stars perform their circling Rounds,
Each fills his Sphere and knows th' appointed Bounds.

When griſly *Winter's* FROST no more prevails, 10.
And *Sol* i'th' ruddy *Eaſt* his Light UNVAILS, 6.
How ſweet! How pleaſing it is then to rove
Thro' op'ning *Viſtas*, or the fragrant Grove!
To hear the gurgling Rill, and gentle Breeze
In dying Murmurs WHISPER thro' the Trees, *Prize.*
Where Birds innumerable ſit and ſing
To wellcome in the new-returning Spring,
Or with nice Art their curious NESTS prepare 7.
To lay their EGGS, and nurſe their callow *Care.* 9.
Come then, and in my Cottage you ſhall find,
My Friend, a chearful Wellcome and a kind;
Expect no coſtly Delicacies here,
CHEESE, TOAST and *Country Food* ſhall be your Fare. 4. 3.
Free from Ambition, SPITE and Strife, 5.
That poiſon all the Sweets of human Life,
Here, Truth and Virtue ſhall be our purſuit,
And Happineſs at laſt will be the Fruit.

Anthony Moore.

The Ænigmas, Rebuſſes, and Catalogue of Birds anſwered in a Letter from *Molly* to her Lover, who has lately abſented himſelf.

Linton, January 10, 1757.

To Mr. *Timothy Titmouſe* at the Sign of the *Parrot*, in 12. 11.
Yellow-hammer Lane. *Liverpool.* 4. reb. 1, 2.

Dear Tim.

IT is WHISPER'd here, but I fancy it's only TEA-KETTLE *Prize.* II.
News, that you are going aboard the *King-fiſher* Sloop; Now 3.
really I cannot think you will be ſuch a *Gooſe*, for tho' this 6.
FROST ſhould continue all the Year, I'd ſooner earn my BREAD X. III.
and CHEESE, by handling a *Crow*, or working at the *Crane* on IV. 8. 7.
the Keys.---You had much better return than ſtay there like
a *Woodcock* to be pickt up by the Preſs-gang, like a Chick by 5.
the *Kite*---then farewell both EGG and Bird---nay was you always 9. IX.
to lie ſafe at SPIT-head, I fancy you would wiſh to ſpend V.
an Evening now and then with your *Turtle-Dove* (as you uſed 2.
to call me, when we were reaping in the *Field* together) at our 1.
Houſe; which, with a good FIRE and the CURTAIN drawn, I. VI.
is as warm as a BIRD-NEST; but indeed every thing you have VII.
done ſince you left us has been a RIDDLE to me, therefore I VIII.
beg you'll return and explain yourſelf to your Admirer till
Death.

F. F. Mangle. *Molly Wagtail.* 10.

An Anſwer to the ÆNIGMAS, and *Catalogue of Birds*, In a Youth's calling up his School-fellow, by Maſter *Rich. Yerburgh* of *Goſberton* School. VIII.

Dear *Jacky* riſe, the School Bell rings,
No FROST inclement doth confine. X.
Hark! How the *Yellow-hammer* ſings; 4.
The CURTAINS draw, and Sloth decline. VI.

Field-fares and *Woodcocks* quit this Iſle, 1, 5.
The *Gooſe*, the *Crow*, the watchful *Crane*, 6. 8. 7.
And *Tit-mouſe*, leave their EGGS awhile; 12. IX.
The *Turtle-doves* their NESTS refrain. 2. VII.
Nell blows, the SPARKS from Fire fly, I.
Taffy regales on TOASTED CHEESE III, IV.
The brightened SPITS do uſeleſs lie, V.
And *Zephyrs* WHISPERS thro' the Trees, *Prize*,
King-fiſhers ſkim along the Brook, 3.
And *Tom* hath raiſed his *Paper-kite*; 9.
The *Parrot* prates; the *Wagtail!* look! 11. 10.
TEA-KETTLE boils, and all is right. II.
Ariſe and let's to School repair,
Our Maſter waits, the Boys are there.

A great Number of very good Anſwers to the Ænigmas, beſides thoſe inſerted, have (this Year) been received; which we (with much Reluctance) are obliged to omit. Thoſe by Mr. *Joſ. Bell*, Mr. *Rob. Hoare* (which are wrote with much Spirit and Energy) would have had the Preference of ſome printed here, had it not been for particular Reaſons that would render their Publication, at this Time improper.—We are ſo well apprized of the Abilities of theſe Gentlemen, that we ſhall be proud of a proper Opportunity to oblige them.—An equal Regard and Acknowledgment is due to the Anſwers by *Amintas*, Mr. *Maſon*, *Symonſide*, and Mr. *Tarratt*.—Thoſe by Mr. *W. Bacon*, Mr. *S. Bamfield*, Mr. *W. Bamfield*, *Dorinda*, Mr. *W. Dennis*, Mr. *J. Dyke*, Miſs *Hoyden*, Mr. *J. Johnſon*, *Eyre Keaj*, Mr. *W. Litſon*, *Lucinda*, Mr. *G. Nokes*, Mrs. *Cordelia Nottingham*, Mr. *J. Peirce*, Mr. *T. Sandling*, Miſs *Lucy Selby*, *Dolly Spinſter*, Mr. *W. Swift*, Mr. *J. Taylor*, Mr. *E. Tyro*, Mr. *E. Warman*, and Mr. *W. Wyld*, have their particular Merits, and might, the greater Part of them, very well bear to ſee the Light. — Mr. *Thomas Baker*, Mr. *G. Butler*, Mr. *Fra. Weſton*, and another Gentleman (who forgot to ſubſcribe his Name) have each anſwered all the Ænigmas, and Catalogue of Birds, in one Copy of Verſes; which, for want of Room we are obliged to omit.

⁂ The *firſt Prize*, of ten Diaries, was won by *Thiſbe*; the *ſecond*, of 8 Diaries, by Mr. *Fr. Weſton*; the two *new Prizes*, of ten Diaries each, were won by *Cælia* and Mr. *French Johnſon*; who are deſired to ſignify by a Line directed to Stationer's-Hall, in what Part of *London*, they pleaſe to have them delivered.

ANSWERS *to the* QUERIES *in the laſt-Year's Diary*.

QUÆRE I. (Why do *Men* often marry for *Beauty*, *Women* ſeldom ?)

Anſwered by Mr. *Chr. Maſon*.

Becauſe *Men* have often the Freedom of Choice, *Women* ſeldom.

QUÆRE II. (Why do Beaſts ſwim naturally, Mankind not ?)

Anſwered by *Enira*.

Becauſe Swimming, with Beaſts, is a natural Motion, being very little different from that of walking; whereas, with Mankind, the Caſe is quite otherwiſe.

QUÆRE III. (Why does a *Razor*, after being heated in hot Water, cut better than when cold ?) *not ſatisfactorily anſwered by anybody.*

Some ſay that the Action of the Fire dilates the Metal and ſo makes the Edge thinner: Others think that the Hot-water renders the Edge more ſupple and leſs liable to break. Others affirm that the Water takes off a kind of Gum, that ſtrongly adheres to the Edge of the Razor when cold; But Nobody has attempted to explain, by what Kind of Power, or Operation the Heat communicates it's Effect.—This, perhaps, is a Speculation that may elude the Search of the moſt ſubtile Enquirers into Nature.

QUÆRE IV. anſwered by *T. B.*

It ſeems clear to me, that the *Man*, in a proſperous Way, who has much to hope; and whoſe Hopes are well grounded, is more happy, or (in other Words) enjoys a greater Pleaſure of Mind, than He, who being arrived at the Height of his Expectations, has nothing more to hope or fear beyond the unavoidable Incidents attending human Nature. The former, to whom new Proſpects of Advantage are continually preſenting themſelves, has his Mind employed in a moſt agreeable Variety; and that Principle implanted in human Nature, whereby we are perpetually puſhed on to look forward for *ſomething new* meets with a proper and conſtant Gratification: Whereas, on the other Hand, he who is arrived to the Height of his Expectations, and has nothing farther to hope or fear, is often ſeen to fall into a *languid Indolence*, for want of proper Objects to exerciſe his Attention and Faculties upon, or, what is worſe, to give into the frivolous or pernicious Amuſements in Order to *kill* Time. If, as Mr. *Pope* elegantly obſerves,

"Hope ſprings eternal in the human Breaſt,
"Man never is, but always, to be bleſt."

He muſt of conſequence be the moſt happy, who has the moſt to hope: Nor can I ſee, however forced this Concluſion may appear, that it admits of any juſt Objection, if ſuch Perſons only be excepted, whoſe preſent Situation is really miſerable.

HOPE is the Balm and Life-blood of the Soul;
It pleaſes, and it laſts.—Indulgent Heav'n
Sent down the kind Deluſion, thro' the Paths
Of rugged Life to lead us patient on,
And make our *happieſt State* no *tedious Thing*.
Our greateſt Good, and what we leaſt can ſpare,
Is *Hope*———

Armſtrong.

ANSWERS to the REBUSES and PARADOX in the laſt Year's DIARY.

1 Rebus anſwered by Mr. *T. Sadler* of *Quilſly*.

The LIVER is Part of a *Swine*, I muſt own,
And POOL is a Water, by moſt Men well known;
So LIVERPOOL muſt be the Name of your Town;
For Commerce and Traffic held much in Renown.

The

The ſame anſwered by Mr. *T. Jaffery.*

Friend *Fletcher's* Rebus points out clear
Fam'd *Liverpool* in Lancaſhire.

2 Rebus anſwered by Mr. *J. Johnſon* Junior, of *Leiceſter.*

LINT join'd to NO revers'd, will tell
Friend *Litſon* doth at *Linton* dwell.

The ſame anſwered by *Philadelphia.*

LINT from Linnen is produc'd,
Reverſe a NO, and it is ON;
Hence LINTON clearly is deduc'd,
Where eats, and ſleeps our Friend *Litſon.*

Both Rebuſes anſwered by Mr. *J. Pierce.*

At LIVERPOOL's great Trade, we own;
And LINTON is a Place well known.

The PARADOX anſwered by Mr. *Tho. Oſborne.*

When *Clocks* went faſter than the *Sun*,
'Twas *then, dear Sir,* your Feats were done.

The ſame anſwered by Mr. *W. Litſon.*

About the Middle of *February*, good *Clocks*, according to the Equation of Time, ought to go faſter than the *Sun*, by near a Quarter of an Hour. And it was in the Interval between the Time of the *Clock's* ſtriking twelve, and the coming of the *Sun* to the *Meridian*, that Mr. *Gibbons* performed his great Exploits.

Concerning the *Paradox* propoſed from *Virgil*; *Legiſta* ſays (poſitively) that *the Place alluded to is a* WELL; *where if a Perſon ſtands, he can't ſee above three Ells of Sky.* We could not (without the Riſque of giving Diſguſt) omit taking ſome Notice of a Solution, wherein the Author (who is a Man of Letters and Underſtanding) ſeems ſo clear; but are obliged, however, to own, that, this way of explaining the Thing, does not to us appear quite ſatisfactory. The Purport of the Queſtion is, *To find where the Sight is reſtrained to three Ells on Earth, by the Sky*; not, *where three Ells of Sky only, can be ſeen.* In Anſwer to which laſt, a Chimney, or a Chink in a Wall might, perhaps, be as proper as a Well.—*Sylvius* (to whom our Diary ſtands indebted for many valuable Pieces) thinks "that the Place meant, is where the Magnitude, or Diameter of the Earth would appear to be only three Ells," which Opinion ſeems to come nearer to the Words of the *Paradox*, and would have more Weight, were it certain that the *Romans*, in the Time of *Virgil*, had a juſt Idea of the Figure and Magnitude of the Earth.—But after all, the Solution hinted at in our laſt Diary, may, perhaps, be as rational as any. It is ſo common and natural for Perſons, ſuch as the *Poet* introduces, who judge by their Senſes only, to imagine that the *Earth and Sky meet*, that, to aſk, *where they do meet* (which I take to be what *Dametas* had in View) cannot, among ſuch, be thought an improper Queſtion: I have myſelf been aſked it, more than once; and remember to have heard an arch Fellow affirm, in a Company of half a Dozen Perſons, that he had actually been ſo far, as not to be able to thruſt a *Shilling* between his Head and the Sky: which was ſeriouſly believed, with great Marks of Aſtoniſhment.

NEW ÆNIGMAS *to be* ANSWERED *in the next* YEAR'S DIARY.

I. An Hiſtorical Ænigmatical Tale by Mr. *Chr. Maſon.*

IN *Anna's* Reign my Parent brought me forth;
And I, as Years advanc'd, advanc'd in Worth:
As Children are, I was to Mirth inclin'd,
Till by Inſtruction I grow more refin'd:
In the ſame Year that ſacred *Anna* dy'd,
I loſt my Parent, but that Loſs ſupply'd
By a kind Guardian, who advanc'd my Fame;
Which will, for *aye*, perpetuate my Name,
Maugre the *Elves* wou'd extirpate the ſame.
What I ſhall ſay, kind Reader, deem not ſtrange,
E'er ſince my Birth my Fortune's been to range,
And by my Viſage, it does plain appear
I've ſeen more *Suns* than there are Weeks i'th' Year:
But tho' I ramble, think not that I'm baſe,
Or Fortune-teller of the *Gypſie-Race*:
I neither pilfer, nor do Fortunes tell;
I Youth excite in Science to excel.
When firſt abroad my Parent ſent me forth,
Few of my Friends did ſcan my real Worth;
But now my Merit to the World is known,
And Men of Letters, me a Fav'rite own;
I too am much eſteem'd by th' *charming Sex*;
Yet, like their *Lovers*, oft their Thoughts perplex;
Tho' Lands, nor Livings do to me accrue,
I pay my *Quota* to the *Revenue.*
Nothing but Merit can ſupport my Cauſe:
Ladies, indulge me ſtill with your Applauſe,
Propitious be, protect me from Abuſe;
A Slave I am adapted for your Uſe.

II. Ænigma 403. by *Harriot.*

I oft adorn the Quadrupede and Clown,
As well as Country Laſs in Ruſſet Gown,
Nor only deck them, but good Service do,
And Natures moſt unpliant can bring too.
Nor is my Worth to *Ruſticks* only known,
I'm valu'd quite as much by *Folks* in *Town*;
The *Beau* and *Belle*, alike my Favours ſhare,
My general Uſe both *Old* and *Young* declare.
When real, or when fancied Woes prevail,
When *Diſhabille* delights, or Spirits fail,
When *Robes de Chambre* do the Ladies grace,
And *Viſitants* in Dreſſing-rooms have place;
Then am I baniſh'd from the *languid Fair*,
My Preſence would inelegant appear.
But when they take the *Amazonian-turn*,
And their great Souls for *Hyde-Park* Glories burn,
There when their Skill in *Jockeyſhip* they ſhew,
You'll ſee me ſparkle—look from *Top* to *Toe.*

III. Ænigma 404. by Mr. *Ant. Moore.*

In ancient Days my early *Reign* began
To civilize the brutal Race of Man.
For Ages, uncontroul'd I reign'd alone;
But now a *younger Brother* ſhares the Throne,
Yet ſtill in Love and Intereſts we agree,
And entertain a perfect Harmony.
When firſt to fair *Britannia's* Iſle I came,
Few knew my Worth, my Quality or Name:
Long veil'd in dark Obſcurity I lay,
Or ſhed by Stealth a *partial* glimm'ring Ray.
In Time, my native Dreſs aſide, I threw
And all my hidden Stores diſclos'd to view.
To me, Mankind their greateſt Bleſſing owe,
Did they their Happineſs but truly know,
Yet as I merit, ſeldom I am priz'd,
By many ſcorn'd, inſulted and deſpis'd.
In Some, I Joy create, in Others, Fear;
And wipe from the *Diſtreſt* the falling Tear.
Princes and Potentates are often known
To claim my Aid that lifts them to the Throne,
And Subjects too; but falſe pretending Friends,
My Favour court to ſerve their private Ends.
Diſputes I often innocently cauſe,
Tho' Peace I favour, and ſupport the Laws;
Hence fraught with Malice, and envenom'd Rage,
Contending Foes in my Behalf engage,
Give Judgment as their different Paſſions move,
And ſomething in me cenſure or approve.
Ye lovely Fair, againſt whoſe piercing Senſe,
The darkeſt Myſt'ries prove a weak Defence,
Diſcover to the World my wond'rous Name,
And prove that your Regard I juſtly claim!

IV. Ænigma 405. by Mr. *Morris Applin.*

With Time coeval, yet how ſtrange to tell!
Am oft the Child of modern Beau, or Belle;
Sages aver one Body cannot be
In Places two at once, but yet in me
This Maxim fails; identically one,
I'm ſeen at once in Country and in Town.
Indeed where not? whene'er my ſtern Command
Is iſſu'd forth, obedience fills the Land.
No Lord, no Lady, dares tranſgreſs my Laws,
But in one grand Alliance fight my Cauſe.
Your Bloods, who neither God, nor Man regard;
Unaw'd by Force, untempted by Reward,
Yeild to my Precept, ſhould I give the Word,
The Beau his Fan, the Belle would wield her Sword,
And ſhould my Seal confirm the bold Decree,
Our Lords, would *Adams*; Ladies, *Eves* wou'd be.
A bold Virago once indeed aſſay'd
In nat'ral Colours and Fig Leaves array'd,
T'uſurp my Throne, and be herſelf obey'd.
But my good Subjects to their Sovereign true,
Soon brought th' Uſurper to diſgrace, her due.
No Prince more anxious for his Vaſſal's Good,
No Vaſſals to their Prince ſo firmly ſtood,
No reſtive Rebel in my Realms you'll find,
Save ſome odd Miſer, or ſome clumſy Hind.
Nor diſaffected theſe one in nine Score,
They love me much, but love their Money more

Pray, gentle Females, do not think me rude,
Tho' on your Patience I ſo long intrude;
Take one Hint more and then I will conclude.
I ſhall be buſy as the Spring comes on,
But think to go to *Garrick's-Houſe* anon,
And if you ar'n't engag'd, ye friendly Fair,
I ſhall be very glad to meet you there.

V. Ænigma 406. by Mr. *Sam. Bentley*.

Ladies—your moſt obedient Servants—we
To you bow low—ſalute you, *frank* and *free*:
Viſit you all in Form, at your own Houſes;
All this, to court your Favour and your Spouſes.
Our Birth, at firſt, is much like your's, ye *Fair*;
A new Creation makes us what we are:
A Being ſtrange, that wants no *Female-Aid*,
All Males we are, by Males alone we're made.
There is at our Creation mighty Buſtle:
Lords, *Cits*, and *Plough-men*, altogether juſtle;
No ſooner born, but like a *Corps* (ſtrange Sight)
Doom'd to the Grave! we're carri'd Shoulder Height;
Moſt rev'rend *Clergy*, the Proceſſion aid
With goodly Grace, and joyn the *Cavalcade*.
To a huge *Body* we are *Limbs*, yet walk
Each one alone, and ev'ry *Limb* can talk.
That Body's *Hydra* like, if one Head dyes
Straight ſprings another, and it's Place ſupplies.
Great is our Pow'r; we can level Mountains,
Make crooked ſtraight, divert the Courſe of Fountains.
In *Sacred Writ* you find, at *Joſhua's* Will,
The *Sun* and *Moon* obedient once ſtood ſtill;
We, *Joſhua* like, have aim'd at Things ſublime,
And with a Word annihilated Time.
We in Effect, and without Fear, can ſay,
Stand and deliver, on the King's Highway.
From you, ye *Fair*, we'd moſt ſevere Reproaches
When lately we attack'd you in your Coaches.
Your *Side-board* too, we have preſum'd to touch,
We piddl'd there a little, but not much.
What next may follow, yet we do not know,
Perhaps at your own *Heads*, may aim a Blow;
Or make your fav'rite *Lap-dogs* feel our Rage,
Or turn quite ſerious and reform the Age.
Know this Truth more; that we are Pillars all,
By which, this Nation muſt, or ſtand, or fall.

VI. Ænigma 407. by *Calophilus*.

A Fav'rite once, I grac'd a Female Reign;
No menial Slave, nor yet of royal Train.
But high advanc'd with Majeſty was ſeen;
And pleas'd alike the Courtier and his Queen.
Like me, ſuch Freedoms could the Lover gain,
In Raptures ſoon he'd bid adieu to Pain.

My Poſt aſſign'd I ſtifly did defend;
And to the *Fair* was found a ſteady Friend.
At length (how hard my Fate!) my Shape was jeer'd;
And I, poor Slave! diſcarded and caſhier'd:
My Being loſt, my Form almoſt unknown,
Unleſs preſerv'd on Canvaſs, or in Stone;
Till by your Art, dear *Ladies!* I reviv'd:
Tho' from your Hands a leſſer Frame deriv'd.
No more the rougher Sex demands my Care;
Ye gave me Birth, and you I ſerve, ye *Fair.*
A flow'ry Wreath round ſome fair Column twin'd,
May aid your Fancy—But ah! now you'll find,
Perhaps, Ideas all of my Remains,
Since only favour'd juſt as Faſhion reigns.

VII. Ænigma 408. by Mr. *Iſaac Tarrat.*

A ſable Son to ſerve ye *Fair,*
From foreign Parts arrived here.
I, from a curious Manſion led,
Am plac'd upon a downy Bed,
Beware ye *Bucks,* ye *Beaus,* ye *Smarts,*
Achilles' *Shield,* defends not Hearts.
At *Handell's* matchleſs grand *Meſſiah,*
I Tété a Tété ſat with Elmyra,
And did ſuch Favours then receive,
As would to *Strephon* Rapture give.
When *Cecil* ſhone, and *Liza* reign'd,
More univerſal Sway I gain'd:
But, like Preferment in the State,
Mark how my Fortunes fluctuate:
To Day admir'd, careſs'd, rever'd;
Before the Morn, belike, caſheer'd.
But why ſo cruel, charming *Fair,*
To one ſo conſtant ſo ſincere,
That never yet his Poſt diſgrac'd,
Till by your Fiat I'm diſplac'd.
Some Circumſtances pray decipher,
And Reaſons give, for why and wherefore,
My Brethren ſhould ſo vary ſize,
Yet in one Shape to tyrannize;
Of one Complection, ever found,
Unleſs on *Æthiopian* Ground,
And numerous as the Stars above,
That deck yon argent Fields of *Jove.*
Ladies, who have a hand at gueſſing,
Know it is you I am addreſſing,
Who by this Time, the *Muſe* depends,
Have got me at your Finger's Ends.

VIII. Ænigma 409. by *Amintas.*

More beauteous than the Queen of Love,
More conſtant than the Turtle Dove,
More tawdry than the Draſs of Beaus;
More fickle than the Wind that blows;
What *Blakeney* fear'd amidſt proud War;
What ſtrikes with Dread the honeſt *Tar*;
What *brave Byng* did to ſave *Mahon*;
What, *Ladies*, you may call your own;
What charms us more than Woman can;
What you eſteem above a Man;
What's ſweeter than the mutual Kiſs,
Will inſtantly unriddle this.

IX. Ænigma 410. by *Philo,*

Ladies, our Names no doubt you'll ſoon diſcover,
Since we adorn the *Nymph,* and charm the *Lover.*

On the fair Sex we half their Charms beſtow,
And ev'n proud Men to us their Being owe.
By *Nymphs* of old in darkeſt Shades confin'd,
Screen'd from the Sun and ſhelter'd from the Wind,
Unſeen, unknown, conceal'd our Beauties lay;
But now at *Park*, at *Maſquerade* and *Play*,
(So alter'd are the Times) with dauntleſs Mien
Ev'n Maids of Honour dare with us be ſeen,
With Girls of low Degree conceal'd we dwell,
Nor grace without a Bluſh the rural Cell.
We're Twins by Birth, and (what muſt raiſe your Wonder)
Tho' both are fair, we're ſeldom ſeen aſunder.

Prize Ænigma, by *Cælia*.

(*Whoever anſwers it before* Candlemas Day, *has a Chance for* 10, *and another for* 8 *Diaries.*)

I ſip'd the Balm from faireſt of all Flowers,
Ere *Adam* baniſh'd was from *Eden's* Bowers;
On him attendant to the diſtant Plains,
I ſooth'd his Anguiſh and allay'd his Pains.
Not form'd by Precept or nice Rules of Art,
I trace each Paſſage to the human Heart,
And ſilent plead, as *Ovid* well records,
Beyond all Pow'r and Eloquence of Words,
Lovely when cloath'd in native Innocence,
And Joys unſullied faſhion'd to diſpenſe.
Yet Pimp, to lawleſs Tyrants oft am made,
A very *Pander* to the vileſt Trade.
Of mutual Good-will deem'd the Mark and Teſt,
Become, perverted, Man's worſt Bane and Peſt;
And Harbinger of Peace by Nature meant,
On Hell-born Treaſon oft an *Herald* ſent.
I am not Fleſh and Blood, yet could not thrive
In Worlds, where none but flit'ring Spirits live,
Nor can exiſt, unleſs in Company;
Nor act, unleſs two Witneſſes are by;
Once I was catch'd at by one ſingle Lad,
So old Bards ſing, but then the Boy was mad.

Near 30 *Ænigmas*, beſides thoſe inſerted, have been received; whereof ſuch as are proper for the *Ladies Diary* may find a Place at another Opportunity. Thoſe by Mrs. *Eliz. Dannce* and Mr. *French Johnſon* (tho' wrote in very good Language) are omitted here as appearing much too plain. On the contrary, what we have received from *Endymion*, Mr. *J. Nunn*, and Miſs *Lucy Selby* ſeem as much too obſcure.—Thoſe ſent by Mr. *J. J.* and *J. W.* would merit our farther Regard, could we be aſſured that they are Originals.

NEW QUÆRIES, REBUSSES, &c. *to be* ANSWERED *in the next Year's Diary.*

Quære I. by Mr. *G. Clarke Butler.*

WHether is *Friendſhip* or *Hatred* the moſt durable?

Quære II. by Mr. *J. Johnſon.*

Whether is the *Drunkard*, the *Whoremonger*, or the *Gameſter*, the moſt pernicious to *Society*?

Quære III. by Mr. *J. Randles.*

Whether do *Fools* bring moſt Profit to *Wiſe-men*, or *Wiſe-men* to *Fools*?

Quære IV. by *T. B.*

Whether, Mr. *Pope*, in L. 34. of Book iv. of his *Dunciad*,

("And running round the Circle finds its ſquare.")

appears to have had a right Idea of what *Geometers* mean, *by ſquaring the Circle*?

A Rebus by Mr. *Berington.*

Of a Colour two Thirds, and what *Roger* gives *Kitty*,
Will point out a Thing that may puzzle the Witty.

Another by Mr. *F. Sandling* of *Hindringham*, in *Norfolk.*

To the *Name* of an *Ox*, in one Language defin'd,
Let his *Price*, in another, be properly join'd;
By which you'll diſcover the Name of a Town,
Where a *Monarch* in Fight loſt his Life with his Crown.

A Paradox by *Tempus Geographicus* (of *Aſhford* in *Kent.*)

I was born in a principal maritime City in *England*, on the 6th of *Feb.* 30 Minutes after eleven o'Clock at Night, notwithſtanding which, it ſo happens that the *Anniverſary* of my Birth is on the 18th Day of that Month, 11 Minutes after four o'Clock in the Morning.

Another by Mr. *Ja. Giles*, wherein Mr. *Gibbon's* Paradox is anſwered.

Your great Exploits (Friend *Gibbons*) done
In th' Time between the *Clock* and *Sun*,
Might be perform'd, I own:
But what do you think one Day I did?
I eat a *Calf*, a *Sheep*, and *Pig*,
And picked ev'ry Bone.
Their Hides I tann'd, and made me Shoes,
The Wool I ſpun, and knit me Hoſe,

Idle I hate to be;
I ſlept away near half the Day;
And yet had Time for Sport and Play;
Pray, what d'ye think of me?

A Paradoxical Problem by Mr. *W. Ingram.*

Ingenious *Artiſts*, pray diſcloſe,
How I nine Trees may ſo diſpoſe,
That juſt ten Rowes may form'd be,
And ev'ry Row contain juſt three.

This Queſtion (in other Words) was alſo propoſed by our ingenious Contributor Mr. Ja. Taylor: *which is here taken Notice of to prevent a Miſunderſtanding, and not with a View to inſinuate any thing to the Diſadvantage of either of the Gentlemen to whom we are obliged.*

ANSWERS *to the* MATHEMATICAL QUESTIONS *in the laſt Year's Diary.*

I. QUEST. 421. anſw. by Mr. *W. Bacon* of *Ipſwich.*

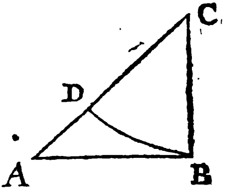
Let the Share of A be $=x$; then that of B will be $=\frac{3x}{4}$, and that of C $=x+70$ (*by the Queſt.*) whence $2x+\frac{3x}{4}+70=1500$ (*by the Queſt.*) and conſequently $x=\frac{1430\times4}{11}=520$. Therefore the Share of A was 520 *l.* that of B 390 *l.* and that of C 590 *l.*

The ſame anſwered by Mr. *R. Flitcon.*

Let $4x$, $3x$, and $4x+70$ denote the Shares of A, B, and C reſpectively; then will $11x+70=1500$ (*per Queſt.*) Whence $x=130$; and the three Shares 520, 390, and 590 Pounds.

Thus the Problem is alſo anſwered by Mr. *W. Bamfield*, Mr. *Edw. Barraſs*, Mr. *Fra. Bell*, Mr. *Ja. Beresford*, Mr. *J. Chapman*, Mr. *G. Clarke*, Mr. *E. Cock*, Mr. *T. Corbet*, Mr. *Ja. Fellowes.* Mr. *Ja. Giles*, Mr. *J. Hampſon*, Mr. *E. Hare*, Mr. *W. Harriſon*, Mr. *G. Hickes*, Mr. *W. Honnor*, Mr. *T. Howe*, Mr. *R, Hudſon*, Mr. *T. Jeffery*, Mr. *J. Johnſon*, Mr. *T. Knight*, Mr. *E. Langworth*, Mr. *J. Lewin*, Mr. *W. Litſon*, Mr. *R. Marſh*, Mr. *W. Mathewſon*, Mr. *Herbert Nokes*, Mr. *J. Rennard*, Mr. *R. Richardſon*, Mr. *Joſ. Roſe*, Mr. *Alex. Rowe*, Mr. *T. Sandling*, Miſs *T. S—l*, Mr. *Joſ. Scott*, Mr. *T. Sims*, *Sinbad*, Mr. *G. Stapley*, Mr. *H. Stephens*, Mr. *J. Stothart*, Mr. *R. Walton*, and many others, as will appear by the Catalogue.

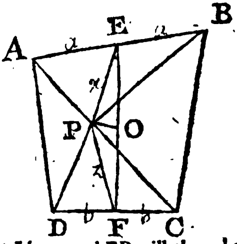
II. QUEST. 422. anſw. by Mr. *J. Hampſon* of *Leigh.*



Let A be the Place of Cannon, B that of the Target, and C that of the Spectator; and in CA take $CD = CB$: Then the Sound of the Cannon will be at D, on the Ball's ſtriking the Target at B; and ſo AD will be to AB in the given Proportion of 2 to 3 *(by the Queſtion.)* Putting, therefore, $AB = 3a$, $AD = 2a$, and $BC (= CD) = x$, we have $AC = x + 2a$; and from thence *(by Eu.* 47. 1.) $xx + 4ax + 4aa = xx + 9aa$: From which $x = \frac{5a}{4} = 208\frac{1}{3}$ Yards.

In the very ſame Manner, it is anſwered by Mr. *W. Allen*, Mr. *J. Bank*, Mr. *Ja. Beresford*, Mr. *W. Bevil*, *Bircboverenſis*, Mr *J. Chapman*, Mr. *T. Corbett*, Mr. *J. Herrington*, Mr. *G. Hicks*, Mr. *J. Honey*, Mr. *W. Honnor*, Mr. *T. Howe*, Mr. *R. Hudſon*, Mr. *J. Milbourn*, Mr. *J. Rennard*, Mr. *T. Sims*, Mr. *H. Stephens*, Mr. *W. Stoker*, Mr. *W. Terrill*, Mr. *J. Wilſon*, and ſeveral others.

III. QUESTION 423, anſwered by Mr. *Will. Kingſton* of *Bath.*



Let A, B, C and D be the four given Points: Biſect AB in E, and CD in F; then aſſuming P for the required Point, and putting $AE = BE = a$, $DF = CF = b$, $EP = x$, and $FP = z$, we ſhall (by the 12 of the 2^d^ of *Simpſon's* Geometry) have $\overline{AP}^2 + \overline{BP}^2 = 2a^2 + 2x^2$, and $\overline{DP}^2 + \overline{CP}^2 = 2b^2 + 2z^2$: Hence $\overline{AP}^2 + \overline{BP}^2 + \overline{DP}^2 + \overline{CP}^2 = 2a^2 + 2b^2 + 2x^2 + 2z^2$, a *Minimum*: And conſequently $x^2 + z^2$ $(\overline{EP}^2 + \overline{FP}^2)$ a *Min.* alſo: which will evidently be when $EP + FP$ is a *Min.* that is, when EP and FP make a right Line; and EP will then be $= FP$; becauſe *(by Eu.* 9. 2.) the Sum of the Squares of the two Parts of a Line equally divided is always leſs than the Sum of the Squares of the Parts, when the Line is divided unequally.

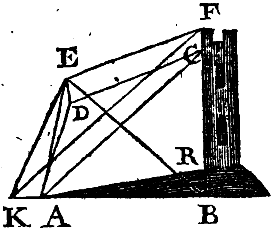
The ſame anſwered by Mr. *W. Lucas.*

Let A, B, C and D repreſent the four given Points, and P any Point taken at Pleaſure; let PE and PF be drawn to biſect AB and DC in E and F; then (by a Theorem in Geometry) $\overline{AP}^2 + \overline{BP}^2 = 2\,\overline{AE}^2 + 2\,\overline{EP}^2$, and $\overline{DP}^2 + \overline{CP}^2 = 2\,\overline{DF}^2 + 2\,\overline{FP}^2$; therefore $\overline{AP}^2 + \overline{BP}^2 + \overline{DP}^2 + \overline{CP}^2 = 2 \times \overline{\overline{AE}^2 + \overline{DF}^2 + \overline{EP}^2 + \overline{FP}^2}$, a *Minimum (per Queſt.)* And conſequently $\overline{EP}^2 + \overline{FP}^2$ a *Minimum* alſo: But, drawing PO to biſect EF, we get $\overline{EP}^2 + \overline{FP}^2 = 2\,\overline{EO}^2 + 2\,\overline{PO}^2$: Therefore $\overline{PO}^2$ a *Minimum*, and ſo PO beng $= 0$, O muſt be the Point required.

In this Manner, and from the very ſame Property, the Problem is elegantly ſolved by Mr. *Rob. Butler*, Mr. *Patrick O'Cavanab*, and Mr. *W. Davies.*

IV. QUEST.

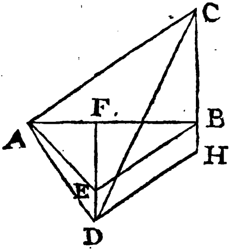
IV. Question 424, anſwered by Mr. *Thomas Baxtondan*, the Propoſer.



Let the Angles BAC and BAR be the given Elevations of the Top and Baſe of the Tower above the Plane of the Horizon AB, at the firſt Station A; Let D be the ſecond Station, and DE its perpendicular Diſtance below the Plane ABE of the firſt. In BC produced, ſuppoſe CF to be taken = DE; let FK be parallel to CA, and let EF, EB, FK and AD be drawn. Then, becauſe DE is equal and parallel to FC, EF will alſo be equal and parallel to DC, and conſequently the Angle EFB (= DCB) = the Complement of the given Elevation at the ſecond Station D. Now, from AD (100) and the Angle ADE (5° 30′), we have given AE = 99,5396; and DE (FC) = 9,5846: And it will be as Rad. Tang. BCA (60°) (: : BC : BA) : : FC : KA = 16,601 : From which, together with AE and the contained Angle KAE (135°), the Angle AKE will be found = 38° 59′. Moreover the Angles FBE and FBK being both right Ones, it will be Tang. BFE (51° 30′): Tang. BFK (60°) : : (BE : BK) : : Sin. BKE (38° 59′) : Sin. BEK = 60° 5′: Whence ABE is alſo given = 80° 56′, AEB = 54° 4′: From which, and AE (= 99,5396) will be found AB = 81,61; and from thence BC = 47,12; BR = 17,34, and RC = 29,77 = Tower's true Height.

An Algebraic Solution to the ſame, by Mr. *Rich. Mallock.*

" I have ſome Reaſon to believe that this Queſtion is wrong printed, *viz.* North for South, or North-Eaſt for South-Eaſt; which being corrected I ſolve it thus."



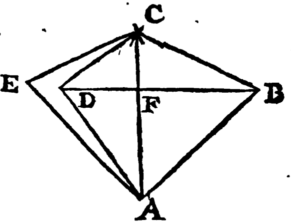
Let DE be the perpendicular Diſtance of the ſecond Station D, below the horizontal Plane (ABE) of the firſt Station A; in CB (the Tower's Height) produced, take BH = ED; join D, H, and upon AB let fall the perpendicular EF.

By Means of AD (= 100) and the given Angle DAE (= 5° 30′) I find ED (= BH) = 9,58458, and AE = 99,53955; from which laſt AF (EF) = 70,3853, Now put BH = b, AF (= EF) = c, and BC = x; and let m and n denote the Tangents of the Complements (BCA and HCD) of the Tower's Elevation at the two Stations A and D: Then (by Trigonometry) BA = mx, and HD = $n\times\overline{x+b}$ = BE (becauſe BH being parallel, and equal to ED, BE will alſo be parallel and equal to HD.) Hence BF = $mx-c$; and conſequently $\overline{mx-c}|^2+c^2=\overline{nx+nb}|^2$ (*Eu.* 47. 1.): Which, ordered, gives $x^2-\frac{mc+nnb}{mn-nn}\times 2x=-\frac{2a^2-n^2b^2}{mm-nn}$; in Numbers, $x^2-193{,}11\,x=-6877{,}8$; whence = 96,555 + 49,44; that is, the Tower's Height above AB the required Diſtance A B is found = 81,5 Yards.

In the very ſame Manner the Próblem is anſwered by Mr. *W. Allen*, Mr. *R. Butler*, *Birchoverenſis*, Mr. *W. Marſhall*, Mr. *J. Milbourn*, Mr. *S. Towndrew*, and Mr. *W. Stoker*.

Through Want of Care in tranſcribing this Queſtion for the Preſs (not from any Fault of the Printer) the Bearing of the Tower, and the firſt Station from each other, was inverted. The Solutions, given above, in which the Tower is ſuppoſed to bear due North of the Obſerver, are exactly conformable to the Propoſer's Meaning.

V. QUESTION 425 *anſwered by Mr.* O'Cavanah.



IN the Caſe propoſed, where the Sums of the Squares of the oppoſite Sides of the Trapezium are equal (and where the Diagonals do, therefore, cut each other at right Angles) the Problem may be thus conſtructed.

Having made A B and A E perpendicular to each other, and equal each to any one of the given Sides (as 35) from the Centers B and E with Radii equal to the two contiguous Sides (25 and 31) let two Arcs be deſcribed, interſecting in C; draw A C, and alſo B D perpendicular, and equal thereto; ſo ſhall A B C D (when A D and C D are drawn) be the Trapezium ſought.

For the Angles A B D and E A C are equal, being both Complements of C A B, to a right Angle *(by Conſtr.)* and the Sides A B, B D, A E, A C, containing them, are alſo, reſpectively, equal *(by Conſtr.)* Whence the remaining Sides A D and E C muſt neceſſarily be equal. Alſo $\overline{AB}^2 - \overline{AD}^2$ $(= \overline{BF}^2 - \overline{DF}^2) = \overline{BC}^2 - \overline{DC}^2$, and therefore $\overline{AB}^2 + \overline{DC}^2 = AD^2 + \overline{BC}^2$, that is, in the preſent Caſe, $\overline{35}^2 + \overline{DC}^2 = \overline{31}^2 + \overline{25}^2$, and conſequently $DC = 19$, as it ought to be. The numerical Solution is, from hence, very eaſy; whereby the Area comes out $= \overset{A}{4} : \overset{R}{1} : \overset{P}{38\frac{1}{4}}$.

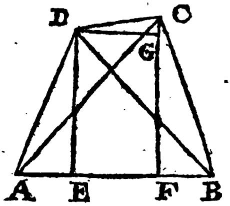
Mr. *W. Harriſon*, Mr. *J. Honey*, Mr. *R. Mallock*, Mr. *J. Pearce*, Mr. *W. Stoker*, and Mr. *W. Terrill* (whoſe Solutions agree in almoſt every Step) give the following analytical Inveſtigation of this Problem:

“ Since the Sums of the Squares of the oppoſite Sides of the Tra-
“ pezium A B C D are equal (by the Queſtion), the Diagonals will,
“ therefore, cut each other at Right-angles in F: ſo that, putting
“ BC (= 25) = *a*, B A (= 35) = *b*, D A (= 31) = *c*, C D
“ (= 19) = *d*, and A C (= B D) = *x*, we ſhall have $x : b + a ::$

"$b - a : AF - CF = \frac{bb - aa}{x}$; and $x : b + c :: b - c$:
"$BF - DF = \frac{bb - cc}{x}$; whence $AF = \frac{x}{2} + \frac{bb - aa}{2x}$, and
"$BF = \frac{x}{2} + \frac{bb - cc}{2x}$; and conſequently $\overline{\frac{x}{2} + \frac{bb - aa}{2x}}^2 +$
"$\overline{\frac{x}{2} + \frac{bb - cc}{2x}}^2 = b^2$; from which Equation $2x^4 - \overline{aa + cc} \times$
"$2x^2 + \overline{bb - aa}^2 + \overline{bb - cc}^2 = 0$. — This, ſolved, gives $x =$
"$\sqrt{\frac{aa + cc}{2} \pm \sqrt{b^2 d^2 - \frac{1}{4} \times \overline{cc - aa}^2}} = 37{,}9$; and the
"Area ſought $\left(= \frac{xx}{2}\right) = \overset{A}{4} : \overset{R}{1} : \overset{P}{38}$."

A general Solution of the ſame Problem by Birchoverenſis.

LET the given Sides DA, AB, BC, CD of the Trapezium be denoted by a, b, c, and d reſpectively; and let each of the equal Diagonals AC, BD, be called x: Then (ſuppoſing DE and CF to be perpendicular to AB, and DG parallel to AB) we ſhall have $b : x + a :: x - a : BE - AE = \frac{xx - aa}{b}$; whence $AE = \frac{bb + aa - xx}{2b}$, and $DE = \frac{\sqrt{-x^4 + \overline{aa + bb} \times 2x^2 - \overline{bb - aa}^2}}{2b}$.



In the ſame Manner $BF = \frac{bb + cc - xx}{2b}$, and $CF = \frac{\sqrt{-x^4 + \overline{cc + bb} \times 2x^2 - \overline{bb - cc}^2}}{2b}$; and conſequently DG $(EF = AB - AE - BF) = \frac{2xx - aa - cc}{2b}$: From which (becauſe $\sqrt{\overline{DC}^2 - \overline{DG}^2} = GC = CF - DE$) we get $\sqrt{4b^2 d^2 - 4x^4 + \overline{aa + cc} \times 4x^2 - \overline{aa + cc}^2} = \sqrt{-x^4 + \overline{cc + bb} \times 2x^2 - \overline{bb - cc}^2} - \sqrt{-x^4 + \overline{aa + bb} \times 2x^2 - \overline{bb - aa}^2}$; whence, by Involution and proper Reduction, there reſults $2x^6 - \overline{aa + bb + cc + dd} \times x^4 - \overline{2a^2c^2 + 2b^2d^2 - \overline{aa + cc} \times \overline{bb + dd}} \times x^2 + \overline{a^2c^2 - b^2d^2} \times \overline{aa + c^2 - bb - dd} = 0$; from which x may be found, let the Values of a, b, c, and d, be what they will: But, in the Caſe propoſed, $aa + cc$ being $= bb + dd$, the laſt Term will vaniſh, and we ſhall have $2x^4 - \overline{2a^2 + 2c^2} \times x^2 - 2a^2c^2 - 2b^2d^2 + \overline{aa+cc}^2 = 0$; which, ſolved, gives $x = \sqrt{\frac{aa+cc}{2} \pm \sqrt{bbdd - \frac{1}{4} \times \overline{cc-aa}^2}} = 37,90015$. Whence the Area ABCD $(= \frac{1}{2}xx) = 718,2145 = \overset{A}{4} : \overset{R}{1} : \overset{P}{38}, 2149$.

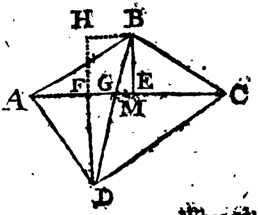
Meſſ. *W. Allen*, *Ja. Bank*, *T. Baxtenden*, *T. Barker*, *Ja. Beresford*, *R. Butler*, *R. Flitcon*, *Joſ. Herrington*, *J. Hampſon*, *R. Hudſon*, *W. Kingſton*, *W. Litſon*, *W. Lucas*, *W. Marſhall*, *W. Mathewſon*, *Penovius*, *R. Richardſon*, *Alex. Rowe*, *W. Spicer*, *J. Thompſon*, and Mr. *J. Wilſon*, alſo favoured us with Solutions to this Problem.

VI. QUESTION 426 *anſwered by Mr.* L. Charlton.

LET x, y, and z repreſent the Sheep bought of each Sort, and a, b, and c the given Prices paid for each Sort, *per* Head, reſpectively: Then will $ax + by + cz = 1200\ (= d)$, and $x^2 + y^2 + z^2$ a *Min.* (by the Queſtion.) Now, ſeeing any two of the Quantities x, y, z, may be here varied, independently of the other, we ſhall (by making x and y to flow, while z remains conſtant) have $a\dot{x} + b\dot{y} = 0$, and $2x\dot{x} + 2y\dot{y} = 0$; from whence $\dot{x} = -\frac{b\dot{y}}{a} = -\frac{y\dot{y}}{x}$; and therefore $y = \frac{bx}{a}$. In the very ſame Manner $z = \frac{cx}{a}$: Whence, by Subſtitution, $ax + \frac{bbx}{a} + \frac{ccx}{a} = d$; and conſequently $x = \frac{ad}{aa+bb+cc} = 24$; whence y is alſo given $= 32$, and $z = 40$.

In the very ſame Manner the Problem is reſolved by Mr. *T. Baxtonden*, Mr. *R. Butler*, and Mr. *W. Lucas*; and in a Manner very little different, by Mr. *W. Allen*, Mr. *W. Bevil*, Mr. *Ja. Fellows*, Mr. *R. Flitcon*, Mr. *J. Honey*, Mr. *T. Howe*, Mr. *R. Hudſon*, Mr. *W. Kingſton*, *Penovius*, Mr. *Joſ. Scott*, Mr. *W. Spicer*, Mr. *W. Terril*, and Mr. *J. Thompſon*.

VII. QUESTION 427 *anſwered by Mr.* J. Thompſon, *of* Witherly-Bridge.



IN the Trapezium ABCD, put AG $= m$, BG $= n$, CG $= p$, DG $= q$; Area ABCD $=$ A, x and y for the Sine and Coſine of the Angle AGD; then, by a known Theorem,

$$\left\{\begin{array}{l}\overline{AB}^2 = m^2 + n^2 + 2mny \\ \overline{DC}^2 = p^2 + q^2 + 2pqy\end{array}\right\} \text{And} \left\{\begin{array}{l}\overline{AD}^2 = m^2 + q^2 - 2mqy \\ \overline{BC}^2 = n^2 + p^2 - 2npy\end{array}\right.$$

C x

Whence, by equal Subtraction, $\overline{AB}^2 + \overline{DC}^2 - \overline{AD}^2 - \overline{BC}^2 = \overline{mn + pq + mq + np} \times 2y = \overline{m+p} \times \overline{n+q} \times 2y = AC \times BD \times 2y$.

Again, by a known Theorem, $mnx + npx + pqx + qnx = 2A$, or, $\overline{m+p} \times \overline{n+q} \times x^{*} = 2A$; hence $\frac{2A}{x} = \frac{\overline{AB}^2 + \overline{DC}^2 - \overline{AD}^2 - \overline{BC}^2}{2y}$, and $\overline{\overline{AB}^2 + \overline{DC}^2 - \overline{AD}^2 - \overline{BC}^2} \times \frac{x}{4y} = A$. Q. E. D.

COROL. From the Equation * the Area of any Trapezium is equal to half the Rectangle under the two Diagonals drawn into the Sine of the Angle contained by them.

The ſame anſwered by Mr. Moſs, *the Propoſer.*

SUPPOSE the Diagonal AC to be biſected in M; and having let fall the Perpendiculars BE and DF, draw BH parallel to AC, meeting DF produced, in H. It is well known, that $\overline{AB}^2 - \overline{BC}^2 = 2AC \times ME$, and $\overline{CD}^2 - \overline{AD}^2 = 2AC \times MF$: Whence, by equal Addition, $\overline{AB}^2 + \overline{CD}^2 - \overline{BC}^2 - \overline{AD}^2 = 2AC \times \overline{ME + MF} = 2AC \times BH$: But $BD = \frac{BH \times Rad.}{Coſ.\ AGD}$; whence $AC \times BD = AC \times BH \times \frac{Rad.}{Coſ.G} = \overline{\overline{AB}^2 + \overline{CD}^2 - \overline{BC}^2 - \overline{AD}^2} \times \frac{\frac{1}{2} Rad.}{Coſ.\ G}$. Again $DH = BH \times \frac{Tang.\ G}{Rad.}$; whence $\frac{1}{2} AC \times DH$ (= Area ABCD) $= \frac{1}{2} AC \times BH \times \frac{Tang.\ G}{Rad.} = \overline{\overline{AB}^2 + \overline{CD}^2 - \overline{BC}^2 - \overline{AD}^2} \times \frac{\frac{1}{4} Tang.\ G}{Rad.}$. Q. E. D.

Meſſ. *Ja. Bank*, *W. Bevil*, *Birchoverenſis*, *R. Butler*, *W. Davies*, *W. Kingſton*, *W. Lucas*, *Penovius*, *W. Spicer*, and *J. Wilſon*, have alſo obliged us with Anſwers to this Problem; all whereof have a near Reſemblance to the one, or the other, of thoſe above exhibited.

VIII. QUESTION 428 *anſwered by Mr.* Robert Butler.

LET a = the firſt Term, r = common Ratio; then $a + ar + ar^2 + ar^3 + ar^4 + ar^5$ $(= a \times \frac{r^6 - 1}{r - 1}) = 500$, and $a \times \overline{r^5 + 1} = 200$ (*per Queſt.*) Multiply theſe two Equations croſs-wiſe; whence $2 \times \overline{r^6 - 1} = 5 \times \overline{r^5 + 1} \times \overline{r - 1}$. Now put $2x = r + 1$, and $2z = r - 1$; then will $x + z = r$, and $x - z = 1$; therefore, by Subſtitution, $\overline{\overline{x+z}^6 - \overline{x-z}^6} = 5z \times \overline{\overline{x+z}^5 + \overline{x-z}^5}$; which, being expanded, gives $19z^4 = x^4 - 30x^2z^2$; whence x^2 =

$= \overline{15+\sqrt{244}} \times z$; therefore $z = \frac{1}{\sqrt{15+\sqrt{244}}-1} =$,22057. Hence $r = 1,4412$, and $a = 27,527$: Therefore the ſix Numbers anſwering the Queſtion are 27,527; 39,94; 57,56; 82,95; 119,55; and 172,473.

In this Manner the Problem is reſolved by Mr. W. Lucas.

The ſame anſwered by Meſſ. Ja. Bank *and* J. Wilſon.

LET x and z repreſent the two middle Terms, and put $a = 200$, and $c = 300$: Then, by the Queſtion, $x + z + \frac{x^2}{z} + \frac{z^2}{x} = c$, and $\frac{x^3}{z^2} + \frac{z^3}{x^2} = a$, or (by Reduction) $\overline{x+z} \times xz + x^3 + z^3 = cxz$, and $x^5 + z^5 = ax^2z^2$; which, by putting $s = x + z$ and $p = xz$, will become $s^3 - 2ps = cp$, and $s^5 - 5ps^3 + 5p^2s = ap^2$; from the former whereof we have $p = \frac{s^3}{2s+c}$; which Value, ſubſtituted in the latter, gives $s^5 - \frac{5s^6}{2s+c} + \frac{5s^7}{\overline{2s+c}|^2} = \frac{as^6}{\overline{2s+c}|^2}$: Whence $s^2 + \overline{a+c} \times s = c^2$, and conſequently $s = \sqrt{c^2 + \frac{\overline{a+c}|^2}{4}} - \frac{a+c}{2} = 50\sqrt{61} - 250 = 140,51248$. Hence $p \left(= \frac{s^3}{2s+c}\right) = \frac{2590000 - 320000\sqrt{61}}{19}$, and $x - z \left(= \sqrt{ss - 4p}\right) = \frac{\sqrt{805000\sqrt{61} - 6275000}}{19} = 25,39269$; from whence the Numbers are found to be 27,714; 39,939; 57,559; 82,952; 119,55 and 172,286.

The ſame Queſtion anſwered by Mr. William Davies.

PUT $2a = 200$ the Sum of the two Extremes, $3a = 300$ the Sum of the four Means, $a - ax =$ the firſt Term; $a + ax =$ the laſt Term, and $y =$ the common Ratio: Then $\overline{a-ax} \times y^5 = a + ax$, and therefore $y^5 = \frac{1+x}{1-x}$; alſo $\overline{a-ax} \times \overline{y+y^2+y^3+y^4}$, or $\overline{a-ax} \times \frac{y-y^5}{1-y} = 3a$; whence $y^5 = \frac{4y-3-xy}{1-x} = \frac{1+x}{1-x}$; and conſequently $y = \frac{4+x}{4-x} = \frac{c+x}{c-x}$ (putting $c = 4$.) Hence we have

$\frac{\overline{c+x}|^5}{\overline{c-x}|^5}=\frac{1+x}{1-x}$; from which, by Reduction, $\overline{5c-1}\times x^4+\overline{10c^3-10c^2}\times x^2=5c^4-c^5$, or $19x^4+480x^2=256$; ſolved $x=\sqrt{\frac{32\sqrt{61}-240}{19}}$; whence the reſt may be found.

In this Manner the Solution is alſo given by Mr. Richard Mallock.

The ſame anſwered by Mr. T. Barker, *of* Weſthall, *in* Suffolk.

LET $x-y$ and $x+y$ denote the third and fourth Numbers (putting $a=200$ and $b=300$). Then (*by the Queſtion*) we ſhall have $\frac{\overline{x-y}|^3}{\overline{x+y}|^2}+\frac{\overline{x+y}|^3}{\overline{x-y}|^2}=a$, and $2x+\frac{\overline{x-y}|^2}{x+y}+\frac{\overline{x+y}|^2}{x-y}=b$; which, cleared of Fractions, give $2x^5+20x^3y^2+10xy^4=a\times\overline{x^4-2x^2y^2+y^4}$, and $4x^3+4xy^2=b\times\overline{xx-yy}$; from the laſt whereof we obtain $y^2=\frac{\frac{1}{4}bx^2-x^3}{\frac{1}{4}b+x}$. Now put $c=\frac{1}{4}b$, and ſubſtitute the Value of y^2 in the other Equation; from whence, after proper Reduction, there will come out $x^2+\overline{\tfrac{1}{2}a+2c}\times x=4c^2$, or $x^2+\frac{a+b}{2}\times x=\frac{bb}{4}$; which, ſolved, gives $x=\frac{\sqrt{aa+2ab+5bb}-a-b}{4}=70,256$; therefore $y=12,696$; and the ſix Number ſought are 27,72; 39,964; 57,564; 82,952; 119,44 and 172,28.

In this laſt Way, and by the very ſame Subſtitution, the Problem is alſo anſwered by Mr. *W. Spicer*; and in a Manner very little different, by Mr. *W. Bevil, Biſchoverenſis*, and Mr. *W. Kingſton*.

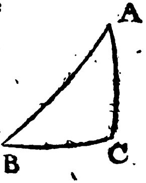
The ſame anſwered by Mr. Hugh Brown.

LET the two Extremes be denoted by $a-x$ and $a+x$; then, putting the given Sum of the four Means $=b$, the Sum of the 1ſt, 2d, 3d, 4th, and 5th Terms will be $=b+a-x$, and that of the 2d, 3d, 4th, 5th, and 6th Terms $=b+a+x$: Whence (by the Nature of Proportionals) it is manifeſt, that the firſt Term is to the ſecond as $b+a-x$ to $b+a+x$, or as 1 to $\frac{b+a+x}{b+a-x}$: But the Ratio of the firſt Term to the ſixth is the Quintuplicate of that of the firſt to the ſecond, that is, $\frac{a+x}{a-x}=\frac{\overline{b+a+x}|^5}{\overline{b+a-x}|^5}$. From whence, putting

$c=$

$c = b + a = 400$, we get $x \times \overline{c+x}^5 + \overline{c-x}^5 = a \times \overline{c+x}^6 - \overline{c-x}^5$, or $x \times \overline{2c^5 + 20c^3x^2 + 10cx^4} = a \times \overline{10c^4x + 20c^2x^3 + 2x^5}$; and conſequently $x^4 + \frac{c-a}{5c-a} \times 10c^2x^2 = \frac{5a-c}{9c-a} \times c^4$: Whence x will be found, and, from thence, all the other Quantities ſought.

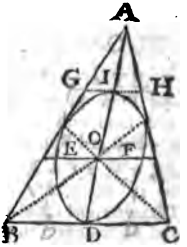
IX. QUESTION 429 *anſwered by* Mr. W. Spicer:



LET A be the Port failed from, and B and C the Ports to which the two Ships are bound. Then, in the right-angled ſpherical Triangle A B C, we have given the Baſe B C, and the Ratio of A B to A C, as 5 to 3: Therefore, putting a = Co-ſine BC (33°: 20′) and x = Co-ſine $\frac{1}{3}$ AC (or $\frac{1}{5}$ AB) we ſhall (by a well known Theorem) have $4x^3 - 3x$ = Co-ſine of AC, and $16x^5 - 20x^3 + 5x$ = Co-ſine of AB; and therefore (*per Spherics*) 1 (Rad.) : a :: $4x^3 - 3x : 16x^5 - 20x^3 + 5x$: and conſequently $16x^4 - 20x^2 + 5 = 4ax^2 - 3a$; which, ſolved, gives $x = \sqrt{\frac{5 + a + \sqrt{4 + \overline{1-a}^2}}{8}} = 0{,}990091$; anſwering to an Arch of 8°: 4′: 21″. Therefore AC = 24°: 13′: 3″, or 1453,05 Miles; and AB = 40°: 21′: 45″, or 2421,75 Miles.

Mr. *O'Cavanah*, *Penovius*, and Mr. *W. Stoker*, anſwer it exactly in the ſame Manner.

X. QUESTION 430 *anſwered by* Penovius.



DRAW the Tangent G H, and the Conjugate Diameter E F, parallel to BC. Put BD = DC = 20 = b, AD = 51,478 = a, the Sine of the Angle at D (74°: 30′: 30″) = s, and DI = x; then will AI = $a - x$, GI = IH = $\frac{b}{a} \times \overline{a-x}$ by ſimilar Triangles; and by the Property of the Ellipſis EO = OF = $b \times \sqrt{\frac{a-x}{a}}$; whence $bx\sqrt{\frac{a-x}{a}}$ is a *Maximum*; in Fluxions $2ax\dot{x} - 3x^2\dot{x} = 0$, and $x = \frac{2a}{3}$; whence EF = $\frac{2b}{\sqrt{3}}$, and the Area of the Ellipſis = $\frac{3{,}1416\,sab}{3\sqrt{3}}$ = 599,8582. Now put the tranſverſe Axis = y, and the Conjugate = z; then, by Conics,

y =

$yz = \frac{4a}{3\sqrt{3}} = 2n$, and $y^2 + z^2 = \frac{4a^2}{9} + \frac{4b^2}{3} = 4m$; from which $y + z = 2\sqrt{m+n}$, and $y - z = 2\sqrt{m-n}$; whence $\sqrt{m+n} \pm \sqrt{m-n} = \left\{ \begin{matrix} y = 35,229236 \\ z = 21,67976 \end{matrix} \right\}$ the principal Diameters required.

Cor. I. All the Sides of the Triangle are biſected by the Points of Contact; and the Center of the Ellipſis coincides with the Center of Gravity of the Triangle.

Cor. II. The Area △ : the Area of El. :: $3\sqrt{3} : 3,1416$. Hence the Areas of all △s circumſcribing the ſame Ellipſis, having their Sides biſected by the Points of Contact, are equal: When $s = 1$, the △ is iſoſceles; and equilateral, when the Ellipſis becomes a Circle.

Mr. *W. Kingſton ſolves* it *in a Manner very little different.*

Mr. *O. Cavanah*, after demonſtrating geometrically, that the leaſt Triangle that can be deſcribed about any oval Figure, will have all its Sides biſected by the Points of Contact, derives, by a different Method, the very ſame Concluſions above exhibited; and farther adds, by way of Note, "That the greateſt Parabola, that can be deſcribed in a given "Triangle, may be determined by the ſame Method; the Area thereof "being to that of the Triangle, as $\sqrt{3}$ is to 2; which Proportion is "general, whatever the Species of the Triangle is, or which-ever of its "Sides the Baſe of the Parabola is ſuppoſed to ſtand upon." "Thoſe "Perſons (continues he) are, therefore, miſtaken, who make the Area "to be greater or leſs, according as the Baſe is made to coincide with "this, or that Side of the Triangle.—The Axis of the Parabola will "not be perpendicular to the Baſe of the Triangle, but parallel to a "Line drawn from the Vertex to biſect the Baſe."

XI. QUESTION 431 *anſwered by the Propoſer, Mr.* Bevil.

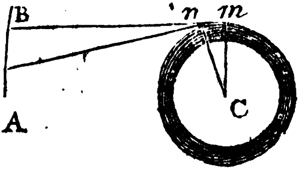
LET a = Diameter of the Poſt, b = twice the Thickneſs of the Binding, n = Number of Rounds, $f = a + nb$, and $c = 3,14159$, &c. then will f, $f - b$, $f - 2b$, $f - 3b$, &c. be the Diameter of the Poſt and Binding, after 0, 1, 2, 3, &c. Rounds are diſengaged; and cf, $c \times \overline{2f - b}$, $c \times 3f - 3b$, &c. will be the Length diſengaged in 1, 2, 3, &c. Rounds reſpectively. But, if d be taken to denote the Diameter, and s the Length of the Part diſengaged, at the End of any Number (r) of Rounds; then (the Length unwrapped at the End of the next Round after, being $= s + cd$) it appears (*by p.* 163 *of Simpſon's Fluxions*) that the Diſtance moved over in unwrapping that Round, will be $= \frac{\overline{s + cd}|^2 - s^2}{d} = 2cs + c^2d$. Now, when $r = 0$, then $d = f$, and $s = 0$; therefore, in the firſt Round, $2cs +$

2

$ccd = ccf$. When $r = 1$, then $d = f - b$, $s = cf$, and conſequently $2cs + ccd = 2c^2f + c^2f - c^2b = c^2 \times \overline{3f - b}$. When $r = 2$, then $d = f - 2b$, $s = c \times \overline{2f - b}$; and therefore $2cs + ccd = c^2 \times \overline{5f - 4b}$: In the ſame Manner, when $r = 3$, then $2cs + ccd = c^2 \times \overline{7f - 9b}$, &c. Now, by collecting all theſe Values of $2cs + ccd$ together we get the two following Series's, *viz.* $c^2f \times \overline{1 + 3 + 5 + 7}$, &c. and $-c^2b \times \overline{0 + 1 + 4 + 9}$, &c. where each Series is to be continued to n Terms: Theſe Series's being ſummed, we have $c^2f \times n^2 - c^2b \times \frac{1}{6}n.\overline{n-1}.\overline{2n-1} = nc^2 \times \overline{nf - \frac{1}{6}b.\overline{n-1}.\overline{2n-1}} = 26$ M. 1 F. = the Diſtance ſought.

In this Manner the Solution is alſo given by Mr. R. Butler.

The ſame anſwered by Mr. H. Watſon.



LET a = the Semi-Diameter of the Poſt; b = the Thickneſs of the Binding wrapped thereon; n = the whole Number of Rounds at firſt; x = the Number of Rounds unwrapped at the End of any Time, and u = the Length of the Part diſengaged at that Time: And, ſuppoſing N and M to be two Poſitions of the End of the Line indefinitely near to each other, to the Points of Contact n and m; from the Center C, let Cn and Cm be drawn.

It is evident, that $a + nb$ will be the Semi-Diameter of the Poſt and Binding together, and conſequently that the Length of the firſt Round (computed at the Middle of the Binding's Thickneſs) will be $= p \times \overline{a + nb - \frac{1}{2}b}$ (p being put $= 2 \times 3{,}1416$.) In the ſame Manner the Length of the laſt of x Rounds will be $= p \times \overline{a + \overline{n - x - \frac{1}{2}} \times b}$. Therefore we have here the firſt and laſt Terms of an Arithmetical Progreſſion, whereof the Number of Terms is x; whereby the Sum of the Progreſſion is found $= p \times \overline{2a + 2\overline{n - x}.b} \times \frac{x}{2} = u$.

Now, ſince the Angles NnC and MmC are both Right-Ones, the Angle NmM will be $=$ nCm; and therefore, the Figures NmM and nCm being ſimilar, we have as Cn $(a + \overline{n - x} \times b) : n\dot{m}\ (\dot{u}) ::$ Nm (u) : NM $= \frac{u\dot{u}}{a + \overline{n - x} \times b}$: But $\dot{u} = p\dot{x} \times \overline{a + \overline{n - x} \times b}$; and conſequently NM $= p\dot{x} \times u = p^2 \times \overline{a + n} \times x\dot{x} - \frac{1}{2}bx^2\dot{x}$: whoſe Fluent $(p^2 \times \overline{a + nb} \times \frac{1}{2}x^2 - \frac{1}{6}bx^3)$ when $x = n$, will be $= n^2p^2 \times \overline{\tfrac{1}{2}a + \tfrac{1}{3}nb} = 1654320$ Inches $(= \overset{M}{26} : \overset{F}{1}$, nearly) = the Diſtance ſought.

N. B. If the Curve AMB be conſidered as the Involute of *Archimedes*'s (or any other Kind of) Spiral, the Length thereof will be always found, by multiplying Nn and its Fluxion together, dividing the Product by the Radius of Curvature of the Evolute (at n), and then taking the Fluent of the Quotient.

XII. QUESTION 432 *anſwered by Mr.* O'Cavanah.

BY Diviſion, and extracting of the Square Root on both Sides of the propoſed Equation, we have $\frac{q^{\frac{1}{2}}}{n^{\frac{1}{2}}} \times \frac{\dot{x}}{x\sqrt{\frac{mx}{n} - 1}} = \frac{1}{p} \times \frac{\dot{z}}{1 + \frac{zz}{p}}$ which, by ſubſtituting $u = \frac{z}{\sqrt{p}}$, and $y = \sqrt{\frac{mx}{n} - 1}$, is further tranſformed to $\frac{\dot{y}}{1 + yy} = \frac{1}{2}\sqrt{\frac{n}{pq}} \times \frac{\dot{u}}{1 + uu}$: whence, ſuppoſing A and B to denote the two circular Arcs whoſe Tangents are y $\left(\sqrt{\frac{mx}{n} - 1}\right)$ and u $\left(\frac{z}{\sqrt{p}}\right)$, we ſhall, by taking the Fluent, have $A + C = \frac{1}{2}\sqrt{\frac{n}{pq}} \times B$; C being a conſtant Arch, ſerving to correct the Fluent. From this Equation, when either of the Quantities z or x is given, the other may be determined *(from a Table of Tangents)* in all Caſes, except when imaginary Quantities enter into the Conſideration: Thus, z being ſuppoſed given, the Tangent u $\left(\frac{z}{\sqrt{p}}\right)$ will alſo be given; and from thence (*by the Table*) the Arch B correſponding; whereby the Arch A $\left(= \frac{1}{2}\sqrt{\frac{n}{pq}} \times B - C\right)$, and its Tangent y, will be known, and conſequently x $\left(= \frac{n}{m} \times \overline{1 + yy}.\right)$

When n, p and q are ſuch, that $\frac{1}{2}\sqrt{\frac{n}{pq}}$ is a rational Quantity, then may the Relation of x and z be algebraically expreſſed, by a finite Equation: For, here the Fraction $\frac{r}{s}$, where r and s are Integers, may be aſſumed $= \frac{1}{2}\sqrt{\frac{n}{pq}}$; and we ſhall have $s \times \overline{A + C} = rB$: But, if

s be

y be taken to denote the Tangent of the Arch C, That of A + C will be $= \frac{c+y}{1-cy}$. Whence (*by the Theorem at p.* 41. *in Ladies Diary for* 1755) the Tangent of $s \times \overline{A+C}$ will be had $= s \times \frac{c+y}{1-cy} - \frac{s}{1} \cdot \frac{s-1}{2} \cdot \frac{s-2}{3} \times \overline{\frac{c+y}{1-cy}}^{3} + \&c. \div \overline{1 - \frac{s}{1} \cdot \frac{s-1}{2} \times \overline{\frac{c+y}{1-cy}}^{2} + \&c.}$ which muſt neceſſarily be equal to the Tangent of $rB = \overline{ru - \frac{r}{1} \cdot \frac{r-1}{2} \cdot \frac{r-2}{3} \times u^{3} \&c.} \div \overline{1 - \frac{r}{1} \cdot \frac{r-1}{2} \times u^{2} \&c.}$ where r and s being Integers, the Series's will terminate, and the Relation of y ($= \sqrt{\frac{mx}{n} - 1}$) and u ($\frac{x}{\sqrt{p}}$) will therefore be expreſſed in finite Terms.

Mr. *Rollinſon* (the Propoſer) anſwers this Queſtion, in almoſt the very ſame Manner. *Peter Walton* has brought out an elegant Solution to it, from p. 66 of *Landen's Mathematical Lucubrations*; and, in a Way not greatly different, the Solution is alſo given by Mr. *R. Butler*, and Mr. *L. Charlton*.

XIII. QUESTION 433 *anſwered by* Peter Walton.

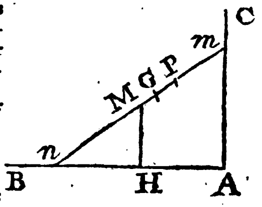
LET A′ denote the Force which, acting at the End n, at right Angles to the Rod, would accelerate the Velocity of that End about (G) the Center of Gravity of the Rod, at the ſame Rate as the ſaid Velocity is accelerated by the Action of the Rod againſt A B; and let A″ denote the Force which, acting at the End m, at right Angles to the Rod, would retard the Velocity of that End about G, at the ſame Rate as the ſaid Velocity is retarded by the Action of the Rod againſt A C: Alſo let u be the Velocity of m, or n, about G; v, the Velocity of G towards the Horizon; w, its Velocity in a Direction parallel to the Horizon; t, the Time the Rod has been in Motion, while it touches A C; T, the Time from the Rod's ceaſing to touch A C; d, the Diſtance of G from A B, at the Commencement of the Motion; x, the Diſtance of G from A B, at any Time after the Motion has commenced; $2a$, the Length of the Rod; $s = 16\frac{1}{12}$ Feet; and $y = \sqrt{a^2 - x^2}$. Then will the abſolute Weight of the Rod, the Preſſure againſt A B, and the Preſſure againſt A C, be as $2s$, $\frac{aA'}{3y}$, and $\frac{aA''}{3x}$ reſpectively: And $\frac{aA''}{3x} \times \frac{-\dot{x}}{v}$ will be $= \dot{w}$, $\overline{A' - A''} \times \frac{-\dot{x}}{v} = \dot{u}$, $\overline{2s - \frac{aA'}{3y}} \times \frac{-\dot{x}}{v} = \dot{v}$, $av = uy$, and $aw = ux$.

By Means of which Equations, we find $3w\dot{w} + u\dot{u} = -6s\dot{x} - 3v\dot{v}$, while the Rod continues to touch A C.

Hence, by taking the correct Fluents and expunging u and w, we have $v = \sqrt{\frac{3ds - 3sx}{a}} \times y = \sqrt{\frac{3ds - 3sx}{a}} \times \sqrt{a^2 - x^2}$.

Therefore w is $= \frac{\sqrt{3ds - 3sx} \times x}{a}$; whoſe Fluxion is $= 0$, and conſequently $x = \frac{2d}{3}$, when A″ $= 0$, i. e. when the Rod cauſes to touch A C. Moreover $\dot{t}$ is $= \frac{-a\dot{x}}{\sqrt{3ds - 3sx} \times \sqrt{a^2 - x^2}}$; whoſe correct Fluent, when x is $= \frac{2d}{3}$, is the Time required in the Queſtion.

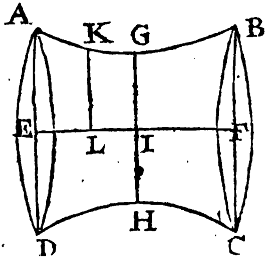
After the Rod has ceaſed to touch A C, (A″ being $= 0$, and w invariable) we ſhall have $A' \times \frac{-\dot{x}}{v} = \dot{u}$, $2s - \frac{aA'}{3y} \times \frac{-\dot{x}}{v} = \dot{v}$, and $av = uy$. From which Equations, we get $u\dot{u} = -6s\dot{x} - 3v\dot{v}$: Hence, by taking the correct Fluents, expunging u, and putting $d - \frac{d^3}{9aa} = b$, we find $v = \frac{2y\sqrt{3sb - 3sx}}{\sqrt{aa + 3yy}} = \frac{2\sqrt{aa - xx} \times \sqrt{3sb - 3sx}}{\sqrt{4aa - 3xx}}$. Conſequently $\dot{T}$ is $= \frac{\dot{x}\sqrt{4aa - 3xx}}{2\sqrt{aa - xx} \times \sqrt{3sb - 3sx}}$; whereby the Time from the Rod's ceaſing to touch A C, to its Coincidence with A B, will be found; from whence and the given (invariable) Velocity $\frac{2d\sqrt{ds}}{3a}$, of the Center of Gravity from the Plane A C, during that Time, the required Diſtance of the End of the Rod from A C will be obtained.



Mr. *O'Cavanab* has alſo obliged us with a Solution to this, very difficult, Problem, which agrees in every Particular with that exhibited above. This Gentleman, at the End of his Solution, ſubjoins the following Remark: "If "the Figure of the Rod ſhould be ſuch "that the Center of Gravity (G) is "not in the middle Point M; then, "putting $b = m$G, and k $(= n$P$) =$ "the Diſtance of the Center of Oſcillation (P) from the End n (conſidered as the Point of Suſpenſion), it will appear, in like Manner, "that the Celerity with which the ſaid End recedes from the Plane "A C, "AC, will be $2y\sqrt{\dfrac{bf\times\overline{c-y}}{\frac{1}{4}dbk-\overline{b-d}\times yy}}$.* When this Quantity is a *Maximum*, the End (m) will quit the Plane AC; after which the relative Celerity wherewith n recedes from MH, will be $=2y\times\sqrt{\dfrac{df\times\overline{r-y}}{ddk-byy}}$: wherein r is a conſtant Quantity, to be determined (like m above) from the Value of y, when the End m ceaſes to touch the Plane AC."

* *Note*, That, in this Author's Solution, $d=$ Mn, $y=$ MH, $c=$ the firſt Value of y, and $f=16\frac{1}{12}$ Feet.

The PRIZE-QUESTION *anſwered by* Mr. E. Rollinſon.



LET ABCD repreſent the Caſk, or Veſſel; put the given Semi-length EI $=c$, and the given Semi-Diameter (AE) at the End $=b$; put alſo IL $=x$, and LK $=y$, ſuppoſing LK to be variable, and parallel to IG: Then, the Fluxion of the Curve-Surface being $\overline{3,1416}\times 2y\sqrt{\dot{y}\dot{y}+\dot{x}\dot{x}}$, it follows, from the Conditions of the Problem, that the Fluent of $y\sqrt{\dot{y}\dot{y}+\dot{x}\dot{x}}$ ought to be a *Minimum*, when *that* of $\dot{x}$ becomes equal to the given Quantity IE. Hence, by the general Rule for the Reſolution of Iſoperimetrical Problems (*Vid. p.* 101 *of* Simpſon's Miſcellaneous Tracts) it appears that $\dfrac{y\dot{x}}{\sqrt{\dot{y}\dot{y}+\dot{x}\dot{x}}}-a=0$; whence $\dot{x}$ is found $=\dfrac{a\dot{y}}{\sqrt{yy-aa}}$; and conſequently $x=a\times$ Hyp. Log. $\dfrac{y+\sqrt{yy-aa}}{a}$, anſwering to the *Catenaria*; in which $a=$ IG (becauſe when $y=a$, x will be $=0$.)

The Equation of the Curve being thus known, the Fluxion of the generated Solid, $\overline{3,1416}\times yy\dot{x}$, will be found $=\overline{3,1416\,a}\times\dfrac{y^2\dot{y}}{\sqrt{yy-aa}}$, and conſequently the Solid itſelf $=\overline{3,1416\,a}\times\overline{\tfrac{1}{2}y}\times\overline{\sqrt{yy-aa}+\tfrac{1}{2}ax}$; the Double of which, when $x=c$, and $y=b$, will be the whole Content of the Veſſel.

But now to find a (which is yet unknown), the general Equation, when $y=b$, and $x=c$, will give $c=a\times$ Hyp. Log. $\dfrac{b+\sqrt{bb-aa}}{a}$, or $\dfrac{c}{a}=$ H. L. $\dfrac{b}{a}+\sqrt{\dfrac{bb}{aa}-1}$; which, by putting $\dfrac{b}{a}=v$, will become Hyp. Log. $v + \sqrt{vv - 1} = \frac{cv}{b} = 0,5\,v$ (in the preſent Caſe) whence v is found $= 1,1788$; and from thence $a = 31,388$. Hence the Content will come out 16121 Cubic Inches, or 69,79 Wine-Gallons. And the Curve-Surface will be leſs than that of the circumſcribing Cylinder, in the Proportion of 95,54 to 100.

☞ The Solution by Mr. *Rolliſon*, here given, being the only true one that came to hand before *Candlemas-Day*, that *Gentleman* is therefore intitled to a *Prize* of twelve *Diaries*, without the Chance of drawing Lots.

New MATHEMATICAL QUESTIONS *to be anſwered in the next Year's* DIARY.

I. QUESTION 434 *by Miſs* T. S——e;

Addreſſed to Mr. U. T——r, *who took the Liberty to aſk her the following Queſtions, viz. What Age? What Fortune? And what Height ſhe was?*

MY Height, Sir, in Inches, is three Times my Years;
My Fortune their Squares will both ſhew;
Put all theſe together, there then, Sir, appears
The Number expos'd to your View.* (*4494
From which, Sir, determine the Things you requir'd;
And then, if more Favours you want,
As Lovers of Science I always admir'd,
Thoſe Favours, perhaps, I may grant.

II. QUESTION 435 *by Mr.* Patrick O'Cavanah.

A Tortoiſe once (or Æſop lies)
Run with a Hare, and won the Prize;
The Hare, in the firſt Minute's Space,
Four Furlongs run o' th' deſtin'd Race,
While far behind her Foe crept on,
And only crawl'd the fourth of one:
Puſs, looking back, obſerves the Caſe,
Diſdains her Foe, and bates her Pace:
In the next Minute ſhe run o'er
But half the Ground ſhe run before;
And in the third was only reckon'd
One half the Space ſhe went the ſecond;
Decreaſing ſtill (as Artiſts call)
In Ratio Geometrical:
Mean Time the Tortoiſe ſtill crept on,
At the ſame Rate as he began:
Now deign to ſhew, ye learned Fair,
In what Time he o'ertook the Hare.

III. QUESTION 436, *by Mr.* John Brickland, *Teacher of the Mathematicks in* Oxford.

WHAT is the Side of that Equilateral Triangle, whoſe Area coſt as much paving at 8 d. a Foot, as the palliſadoing the three Sides did at a Guinea a Yard?

IV. QUESTION 437, *by Mr.* Thomas Moſs.

FROM the vertical Angle of a Triangle (whoſe Baſe is 70, and its two Sides 40 and 50) to draw a Line, terminating in the Baſe, ſo as to be a Mean-proportional between the two Segments of the Baſe made thereby.

V. QUESTION 438, *by Mr.* Peter Walton.

TO place three Circles (whoſe Radii are 10, 15, and 20) ſo that three Right-Lines may be drawn each, to touch all the three Circles.

VI. QUESTION 439, *by Mr.* W. Bevil.

THE Baſe of an Iſoſceles Triangle being given = 100, and each of the equal Sides = 60; ſo to draw a Right-line from the Vertex to the Baſe, that the Solid (or continual Product) under it and the 2 Segments of the Baſe ſhall be the greateſt poſſible.

VII. QUEST. 440, *by Mr.* J. Fellows, *of his Majeſty's Ship* Captain.

UNDER the Line (or very near)
NE, SW, two Ports do bear,
Whoſe Diſtance, if I rightly gueſs,
Is fifty Leagues, nor more nor leſs;
Between which Ports a Current goes,
SE, three Knots, as I ſuppoſe:
The Quere is, how muſt I ſail
From northern Port, in five-knot Gale,
That I the ſouthern Port may make
In the leaſt Time the Thing can take?
And what that Time will be, declare;
I'll do as much for you next Year.

VIII. QUESTION 441, *by Mr.* Lionel Charlton.

IT being a common Practice, among Ship-Chandlers, to make their Log-Lines 42 Feet long, and their Half-minute Glaſſes 28 Vibrations of a Pendulum, whoſe Length is 38 Inches and Half; Quere, how far a Ship's Reckoning will vary from the Truth, that uſes only theſe, and ſails by Mercator on one Rhumb from the Lizard to the Capes of Virginia?

IX. QUESTION 442, *by Mr.* J. Wilſon.

Given $\left\{\begin{array}{l} x^2z+z^2x=a \\ x^2z^7+z^2x^7=b \end{array}\right\}$ To find x and z, without having the Root of any affected Equation to extract higher than a Quadratic.

X. QUESTION 443, *by Mr.* H. Watſon.

FROM the Equation $44000\,xx+1=zz$, to find both x and z in whole Numbers.

XI. QUESTION 444, *by Mr.* Fr. Bell.

A Gentleman having in his Garden an elliptical Fountain, whoſe greater Diameter is 30, and the leſſer 24, Feet, orders a Free-ſtone-Walk to be made round it, to be every where of an equal Breadth, and to take up juſt the ſame Quantity of Ground as the Fountain itſelf: Quere, what muſt the Breadth of the Walk be?

XII. QUESTION 445, *by* Plus-Minus.

ONE Morning laſt Summer, being in a Gentleman's Garden, I ſaw a very good horizontal Sun-Dial, which was not fixed down, but neatly ſet into the Poſt on which it ſtood: Taking hold of the Gnomon, I pulled it towards me, thereby elevating the South Side of the Dial, ſtill keeping the Gnomon in the Plane of the Meridian: Upon this, the Shadow came forward from the Hour-Line of 7, till it marked 7 h. 40 m. and no nearer to the Meridian, or 12 o'Clock, would it come; for, if the Dial was farther elevated, it turned back again: Now the Day of the Month (which I have forgot, and for private Reaſons ſhould be glad to recollect) is here required.

XIII. QUESTION 446, *by Mr.* Patrick O'Cavanah, *of* Dublin.

HOW muſt I incloſe an Acre of Land into a Garden, with a Fence of 80 Poles in Circumference, ſo as to be able to form therein the longeſt (ſtraight) Walk poſſible, and what will that Length be, ſuppoſing the Breadth of the Walk to be 10 Feet?

XIV. QUESTION 447, *by* Peter Walton, DISCIP. LANDENII.

A Chain, 10 Yards long, conſiſting of indefinitely ſmall equal Links, being laid ſtraight on an horizontal (perfectly poliſhed) Plane, except one Part, a Yard in Length, which hangs down perpendicularly below the Plane: In what Time will the ſaid Chain (drawn by the Gravity of the deſcending Part) entirely quit the Plane?

PRIZE-QUESTION, *by Mr.* G. Witchell.

(*Whoever anſwers the ſame before* Candlemas-Day *has a Chance for Twelve* Diaries.)

TO determine the neareſt Diſtance of the Orbit of the expected Comet from that of the Earth, together with the Longitude of the Earth and Comet in that Situation, ſuppoſing, 1°. That the Orbit of the Earth is a Circle. 2°. That the Trajectory of the Comet is a Parabola, whoſe Focus is the Center of the Earth's Orbit. 3°. That the perihelion Diſtance of the Comet is to the Radius of the Circle, as 0,5868 to 1. 4°. That the Inclination of the Planes is 17° 2′; the Place of the Perihelion ♒ 3° 30′, and that of the deſcending Node ♏ 22° 13′.

ERRATA.

The ſecond Sheet of this Diary having been (inadvertently) put to the Preſs without being firſt ſent to be reviſed by the Author, the following Errors, with ſome others of leſs Conſequence, have eſcaped Notice: Page 17, line 12, for Meat, r. Meal; p. 18, l. 17, for Metal, r. Mettle; p. 19, l. 9, for Curtain, r. Curtains; l. 13, for when, r. where; p. 20, l. 15, after Ambition, r. Envy; l. 36, for ſend, r. ſpend; p. 24, l. 7, for grow, r. grew; p. 26, l. 27, before we, r. for; p. 27, l. 16, for ye, r. the; p. 28, l. 33, for ſitring, r. flitting; p. 29, l. 12, for its, r. it; p. 32, l. 17, for ADE, r. DAE; l. 50, for 2 a, r. 2 c. In the Cut, p. 32, the Tower's Height ſhould terminate at C, CF not being conſidered as a Part thereof, but only as an imaginary line, equal to ED.

ERRATA *in the laſt Year's* DIARY.

Page 18, l. 23, for Canons, r. Cannons; p. 27, l. 20, for conbine, r. combine; p. 29, l. 29, dele you; p. 30, l. 18, for a Piece, r. a-piece; p. 37, l. 17, r. B and B E; p. 44. l. 5, r. Number whoſe Hyp. Log. is pz; p. 46, l. 9, for North, r. South; p. 48, l. 1, for was, r. were.

An Alphabetical Catalogue *of the* Contributors to this Diary; *wherein the Numerical Letters,* i, ii, iii, *&c. ſhew which Ænigmas, and the Figures* 1, 2, 3, *&c. which Queſtions, each anſwered;* Æ. Q. *and* P. *denote the Solution of the Prize-Ænigma, Prize-Queſtion, or the Propoſing ſomething new;* q. p. r. *and* b. *reſpectively ſignify the Explanation of the Queries, Paradoxes, Rebuſes, and the Catalogue of Birds.*

MR. Morris Applin all Æ. P. Abaofilia all Æ. r. b. P. Acteon all Æ. Aimwell all Æ. Mr. W. Allen, 1, 2, 5, 6. Amintas all Æ. P. Mr W. Bacon all Æ. b. 1. P. Mr T. Baker all Æ. b. P. Mr Sam. Bamfield all Æ. P. Mr. W. Bamfield all Æ. r. p. 1. Mr Ja. Bank 1, 2, 3, 5, 7, 8, 9. P. Mr T. Barker 1, 4, 5, 8, 9. P. Mr Edw. Barras all Æ. 1. Mr T. Baxtonden 1, 2, 3, 4, 5, 6, 9. Mr W. Bayley all Æ. b. r. 1. Mr Fra. Bell moſt Æ. r. p. 1. P. Mr Joſ. Bell all Æ. Mr S. Bentley all Æ. Mr Ja. Beresford all Æ. 1, 2, 5. Mr Berington b. r. P. Mr F. Butcher P. Mr R. Butler 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 11, 12. P. Mr W. Bevil all Æ. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. Birchoverenſis all Æ. 1, 2, 3, 4, 5, 6, 7, 8. Calophilus all Æ. P. Mr. O'Cavanah all Q. P. Mr J. Chapman 1, 2, 9. r. Mr L. Charlton all Æ. b. 6, 9, 10, 12. P. Caelia all Æ. P. Mr G. Clarke all Æ. r. b. 1. P. Mr E. Cock all Æ. 1, 6. Mr T. Corbett all Æ. r. p. P. 1, 2. Mr Nath. Cory moſt Æ. b. Mr W. Davies Æ. 3, 6, 7, 8. M. Eliz. Daunce P. Mr W. Dennis all Æ. P. Dorinda all Æ. b. Miſs D. Doubleday all Æ. P. Mr J. Dyke all Æ. r. P. Endymion Æ. P. Mr Ja. Fellows 1, 6, P. Mr J. Fletcher all Æ. r. b. 1. Mr R. Flitcon 1, 5, 6. Mr Zach. Gaskell, Q. Mr Sam. Gawthorpe all Æ. r. b. P. Tempus Geographicus P. Mr Rich. Gibbons all Æ. p. r. b. P. Mr Ja. Giles 1, 2, P. Mr J. Gutteridge all Æ. Cal. Eclipſes. Mr. J. Hampſon 1, 2, 5, 6, 9, P. Mr E. Hare, 1. Harriot. P. Mr W. Harriſon 1, 5, P. Mr J. Herrington all Æ. r. 1, 2, 5. Mr. G. Hicks 1, 2. Mr R. Hind P. Mr Ja. Honey 1, 2, 5, 6, 9. Mr T. Howe all Æ. 1, 2, 6, 9. Mr Sam. Hoſmar b. moſt Æ. Mr R. Hoare all Æ. Mr W. Honnor 1, 2, 6. Miſs Hoyden all Æ. Mr R. Hudſon all Æ. 1, 2, 5, 6. Mr J. Hudſon, P. Mr T. Jeffery Æ. r. 1. 2. Mr W. Ingram all Æ. P. Mr French Johnſon all Æ. b. Mr J. Johnſon all Æ. r. b. 1, 3, 6, P. Mr Eyre Keay all Æ. 1. Mr W. Kingſton all Æ. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. P. Mr T. Knight all Æ. 1. Legiſta, all Æ. b. Mr E. Langworthy all Æ. r. p. b. Mr W. Liſton all Æ. r. p. Eclipſes 1, 2, 5, P. Lucinda all Æ. Mr W. Lucas all Æ. 1, 2, 3, 4, 5, 6, 7, 8, 9. Mr F. F. Mangle all Æ. r. b. P. Mr R. Mallock all Æ. 1, 4, 5, 8, 9. Mr Robert Marſhall all Æ. p. b. 1. Mr W. Marſhall all Æ. 1, 4, 5. Mr Chriſ. Maſon all Æ. q. r. p. b. P. Mr W. Matthewſon all Æ. 1, 5, P. Mr J. Milbourn 1, 2, 4. Plus-Minus Æ. P. Mr Ant. Moore all Æ. P. Miſs Sally-Anne Morris Æ. Mrs Cordelia Nottingham all Æ. Mr Geo. Nokes all Æ. b. P. Mr Herbert Nokes 1. Mr J. Nunn all Æ. P. Mr T. Oſborne all Æ. P. Mr J. Pearce 1, 5, 6, 9. Mr J. Peirce all Æ. r. p. P. Mr J. Pennel r. p. Penovius 5, 6, 7, 8, 9, 10, P. Philadelphia all Æ. but vi and vii. r. b. Philo P. Mr. Ralph Ramſay Æ. Mr J. Randles Æ. P. Mr J. Rennard all Æ. r. 1, 2. Mr R. Richardſon 1, 5, P. Miſs Eſther Rickaby all Æ. Mr Joſ. Roſe r. Mr Alex. Rowe 1, 5, P. Mr T. Sadler all Æ. q, r. p. P. Mr T. Sanderſon all Æ. P. Mr T. Sandling all Æ. r. 1. Miſs T. S---e 1. P. Mr Joſ. Scott all Æ. 1, 2, 5, 6. P. Miſs Lucy Selby all Æ. r. p. b. P. Gentle Shepherd all Æ. Sinbad 1. Mr T. Sims 1, 2. P. Mr W. Smith Æ. Mr H. Seaſon all AE. q. p. Mr W. Spicer 1, 2, 3, 4, 5, 6, 7, 8, 9. P. Miſs Dolly Spinſter all Æ. P. Mr H. Stephens 1, 2. Mr J. Stewart all Æ. P. Mr W. Stoker all Æ. 1, 2, 4, 5, 9. Mr G. Stapley all Æ. r. b. 1. Mr J. Stothart 1, 9. Mr W. Swift all Æ. r. P. Sylvius AE. Symonſide all AE. Mr Iſaac Tarrat all AE. P. Mr Ja. Taylor all AE. P. Mr John Taylor all AE. r. Mr W. Terrill 1, 2, 5, 6, 9. Cal. Eclipſes. Mrs Grace Tetlow all AE. Thiſbe all AE. Mr J. Thompſon 1, 5, 6, 9, P. Mr J. Thorne moſt AE. P. Mr Sam. Towndrow 4. Cal. Eclipſes. Mr E. Tyro all AE. Mr T. Vall AE. b. P. Mr T. Vicary AE. Mr P. Walton 6, 12, 13. P. Mr R. Walton AE. p. r. 1. Mr Edward Warman all AE. P. Mr J. Webſter all AE. b. P. Mr Fr. Weſton all AE. b. P. Mr J. Wilſon 1, 2, 3, 5, 7 8, 9. P. Mr T. Wilſon 1. r. P. Mr J. Wolcot P. Mr. W. Wyld all AE. b. P. Mr Richard Yerburgh all AE. b. 1, 2.

FINIS.

The GENTLEMAN and LADY's

PALLADIUM,

For the Year of our LORD, 1758.

CONTAINING,

EW IMPROVEMENTS in SCIENCE. A Royal CHRONOLOGER. VERSES to the Memory of the late HORATIO Lord WALPOLE, a public BENEFACTOR. OF the Nature of GOD, SPIRIT, and MATTER. OF COMETS; and of the COMET, expected to return this YEAR. *Aſtronomical* TABLES and ÆQUATIONS. *Perpetual* TIME-TABLES, or RULES for *Almanac Makers, Hiſtorians,* and *Chronologiſts,* either according to OLD or NEW STILE; *Particularly uſeful* for all Perſons employ'd to write *Almanacs* by the *Stationers Company.*

With a **Law-Paradox.**

emarks on the late Biſhop of *Cloyne*'s Principles of *Human Knowledge,* (before omitted) or an INQUISITION into *Sophiſtry* and *Error.* By Ταυτολογος. *Obſervations* on the People in the WORLD call'd CHRISTIANS, &c.

The Tenth Number publiſh'd. *Aut diſce aut diſcere.*—

Humbly inſcribed to the ROYAL SOCIETY.

By the late AUTHOR of the LADIES DIARY.

J. S. Müller Sc.

To aſk or ſearch I blame *thee not*— for Heaven
Is *as the Book* of GOD *before Thee ſet :*
Wherein to read *his* wond'rous Works, and *learn*

To the CONTRIBUTORS.

1. YE SONS of APOLLO attend,
Whom Genius and Science adorn,
To GLORY by Learning aſcend,
A TITLE to which Ye were born.

2. Here Pallas's Temple you ſee,
The Goddeſs your Entrance invites,
Her Gifts and her Honours are free;
In *Wiſdom* is what She delights.

3. The Arts are her *Handmaids* that wait,
And Mortals to SCIENCE convey,
They open PHILOSOPHY's *Gate*,
And courteouſly ſhew us the Way.

4. *Improvement* that benefits Man,
Or greatly enlarges the Mind,
The *Artiſt* who perfects the *Plan*,
A *Place* in her *Favour* ſhall find.

5. Then nobly your Talents exert,
Your Names in her *Temple* record,
Your Rights to her Honours aſſert,
And *Fame* ſhall your Merits reward.

6. — Ye *Nymphs* who on *Science* intent,
Yet charm with your Beauty ſo bright,
On Conqueſt ſagaciouſly bent,
Double arm'd, you will kill us out-right.

7. Your Beauty begins the Attack,
Your *Learning* then brings up the Rear,
What Courage ſuch *Forces* can break,
What Chance have we now with the Fair?

8. Your *Siſters*, the *Muſes*, have wreath'd
The *Garlands* your Temples that bind,
Apollo, your Father, has breath'd
The Fire that enlivens your Mind:

9. The Graces, with ſtudious Care,
Have render'd you ſweetly complete,
Your *Foibles* (if any there were)
We now muſt for ever forget.

10. If *Poetry* kindle the Fire,
And Friendſhip or Love be the Theme,
Your Softneſs and Skill we admire,
And feel the enlivening Beam!

11. *Ænigmas* that puzzle the Wiſe,
And baffle our Skill to explain,
You quickly ſtrip off the Diſguiſe,
And render Obſcurity vain.

12. Your *Wit's* the PALLADIUM's* Grace,
(Your MERIT ſhall live on its Page)
Then rival each other in PLACE,
And be the RENOWN'D of the Age.

* PALLAS *was the Goddeſs of* War *and* Wiſdom, *and the* Palladium *was the Statue which the* Trojans *believed fell from Heaven into her* Temple, *before it was covered and they were told, by the Oracle of* Apollo *that the City of* Troy *ſhou'd be inexpugnable ſo long as that was with them. When the City was taken* Æneas *carried it away with his Tutelar Gods into* Italy, *and fixed it at* Rome, *and had ſeveral* Counterfeit-Ones *made like it to prevent the* true one *from being ſtolen.*

CHRONOLOGICAL NOTES for 1758.

Dominical Letter, N. S.	A	*Palm Sunday*	March 19
Old Stile	D	EASTER	26
Golden Number	11	*Low Sunday*	Apr. 2
Epact	20	*Rogation*	30
Septuageſima Sunday	Jan. 22	*Aſcenſion-Day*	May 4
Sexageſima	29	*Whitſunday*	14
Quinqua. or *Shrove-Sund*	Feb. 5	*Trinity Sunday*	21
Aſh-Wedneſday	8	*Advent*	Dec. 3
Quadrag. or *1ſt Sund. in Lent*	12		

⁂ Correſpondents are deſired to direct their Letters to the Author of the Palladium (franked or Poſt paid) *to be left with Mr.* John Marchant, *on* Clerkenwell Green, *near* Red-lion Street, London. *And any of the* Diary Correſpondents *directing their Letters to the ſame Place ſhall be obliged.*

The ROYAL CHRONOLOGER *for the* YEAR 1758: *Being a* MEMORANDUM *of the* Holidays, remarkable Days, Birth-days, &c.

HOLIDAYS are kept at

The EXCHEQUER,
STAMP-OFFICE,
EXCISE-OFFICE,

CUSTOM-HOUSE,
and
SOUTH-SEA-HOUSE.

On the following Days, *viz.*

Ms.	D.	Holidays.	Ms.	D.	Holidays.
Jan.	1	Circumciſion.	*Feb.*	2	Purif. V. Mary.
	25	St. Paul.		7	Shrove Tueſday.
	30	K. Charles I, Mart.		8	Aſh Wedneſday.

Ms.	D.	Holidays.
Mar.	1	St. David.
	24	Good Friday.
	25	Lady-day.
	27	Eaſter Monday.
	28	Eaſter Tueſday.
	29	Eaſter Wedneſday.
Ap.	23	St. George.
	25	St. Mark.
	26	Duke Cumb. born.
May	1	St. Philip & James.
	4	Aſcenſion-day.
	15	Whitſun-Monday.
	16	Whitſun-Tueſday.
	17	Whitſun-Wedneſday
	29	K. Cha. II. Reſtor.
June	4	Geo. P. of Wales. b.
	11	St. Barnabas.
	22	K. Geo. II. Inaug.
	24	St. John Baptiſt.
	26	K. Geo. II. procl.
	29	St. Peter and Paul.
July	15	St. Swithin.
	25	St. James.
Aug.	1	Lammas-day.
	24	St. Bartholomew.
Sept.	2	London burnt.
	14	Holy Rood.
	21	St. Matthew.
Oct.	18	St. Luke.
	22	K. Geo. II. crown'd
	28	St. Simon and Jude.
Nov.	1	All Saints.
	2	Prs. Orange born.
	4	King William born.
	5	Powder Plot.
	9	Lord Mayor's-day.
	10	K. Geo. II's Birth-day kept.
	28	Q. Eliz. Acceſſion.
	30	Prs. Dow. W. born.
Dec.	21	St. Thomas.
	25	Chriſtmas-day.
	26	St. Stephen.
	27	St. John.
	28	Innocents.

N. B. At the *Cuſtom-houſe* there is *no Holiday* on *St. David*, *Eaſter Wedneſday*, *Duke of Cumberland's Birth-day*, *Whitſun Wedneſday*, *St. Swithun*, *Lammas-day*, *Fire of London*, or *Holy-Rood*.

At the *South-Sea-Houſe* there is *no Holiday* on *Valentine*, *St. David*, *St. Swithun*, or *Holy Rood*.

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††† The *Feſtival* marked with * is preceded by a *Vigil* or *Faſt*.

If any of the Feaſt-days marked * fall upon a *Monday*, the Vigil or Faſt muſt be kept on the *Saturday* before, and not on the *Sunday*, which is the greateſt of Feſtivals.

JANUARY xxxi Days.

1 1 *Sunday after Chriſt's Circumciſion.*
4 Sir *Iſaac Newton* born, 1643, N. S.
5 Old Chriſtmas-day.
6 *Twelfth-day*, or Epiph.
8 1 *Sunday after Epiphany.* Lucian.
10 *Princeſs Eliz.* b. 1740.
13 Hillary.
14 Oxf. and Camb. Ter. beg.
15 2 *Sunday after Epiphany.* Exchequer opens.
17 Old Twelfth-day.
18 Priſca.
20 Fabian. Oct. Hil. 1 ret.
22 *Septuageſima Sunday.*
23 Hillary Term begins.
25 *Converſion of St. Paul.*

27 Quind. Hill. 2 return.
29 *Sexageſima Sunday.*
30 *K. Cha.* II. *Mart.* 1648-9.
O. S. 12 M. paſt One.

FEBRUARY xxviii Days.

2 *Purification Virg. Mary.* or Candlemas-day.
3 Blaize, 3 ret.
5 *Quinquageſima,* or Shrove Sunday.
6 *Shrove Monday.*
7 *Shrove Tueſday.*
8 *Aſh-Wedneſday.*
9 Octab. Purif. 4 return. Camb. Com. for B. A. the Day after Aſh-Wedneſday.
12 *Quadrageſima,* 1 *Sunday in Lent.*
13 Old Candlemas-day.
14 Valentine.
15 17, 18 *Ember.*
19 2 *Sund. in Lent.*
24 *St. Matthias.**
26 3 *Sund. in Lent.*
28 Hare Hunting goes out.

MARCH xxxi Days.

1 David.
2 Cedde or Chad.
5 4 *Sunday in Lent. Prs. Mary of Heſſe* b. 1722.
7 Perpet. Maurit.
9 Camb. latter Act, Thurſday aft. 4th Sun in Lent.
12 5 *Sund. in Lent.* Gregory.
17 St. Patrick.
18 Edw. King Weſt Saxons. Oxf. and Camb. Terms end the Day before Palm Sunday.
19 *Palm Sunday. Prſſe Louiſa-Ann* b. 1749. Joſeph.
20 Cuthbert. Equal Day and Night.
21 Benedict.
23 Maunday Thurſday.
24 *Good Friday.*
25 *Annunciation**. Pr. Edw. born, 1739. Firſt Quarter-day.
26 EASTER *Sunday.*
27 *Eaſter Monday.*
28 *Eaſter Tueſday.*

APRIL xxx Days.

1 All Fools-day.
2 1 *Sunday after Eaſter,* or *Low Sunday.*
3 Richard.
4 Ambroſe.
5 Oxf. and Camb. Ter. beg. Wedneſday after 1 Sund. after Eaſter. Old Lady-day.
9 2 *Sund. aft. Eaſter.* 1 ret.
12 Eaſter Term begins 17 Days after Eaſter.
15 Sun and Clocks together.
16 3 *Sund. aft. Eaſter.* 2 ret.
19 Alphege.
23 4 *Sund. aft. Eaſter.* 3 ret. St. George.
24 WeſtminſterElection, Day after 4th Sunday after Eaſter.
25. *St. Mark.*
26 DUKE of CUMBERLAND, Captain-General of all his Majeſty's Forces, b. 1721.
27 Victory of Culloden, 1746
30 *Rogation Sunday.* 4 ret.

MAY xxxi Days.

1 *Philip and James.* 1, 2, 3 Rogation-days.
3 Invention of the Croſs.
4 *Aſcenſion-day,* or Holy-Th.
6 St. John Ant. Port. Lat.
7 6 *Sund. after Eaſter.*
8 Eaſter Term ends in 27 Days, or 43 Days from Eaſter.
11 Oxf. and Cam. Terms end Thurſday before Whitſunday.

12 Old May-day.
14 *Whitſunday.*
15 *Whit-Monday.*
16 *Whit-Tueſday.*
17 19, 20 Ember.
21 *Trinity Sunday.*
22 *Trinity Monday.* 1 ret. Trinity Col. Election.
23 *Trinity Tueſday.*
24 Pr. Fred. Will. b. 1750. Oxf. and Camb. Terms beg. Wed. aft. Tr. Sund. 24, 26, 27 Ember.
25 Corpus Chriſti, Thurſday after Trinity Sunday.
26 Auguſtine. Trin. Term begins 5 Days after Trinity Sunday.
27 Venerable Bede.
28 1 *Sund. after Trin.* 2 ret.
29 *K. Charles II.'s Nativity and Reſtoration.*

JUNE xxx Days.

1 Nicomedes.
4 2 *Sund. after Tr.* 3 ret. *George Prince of Wales* born, 1738.
5 Boniface.
10 *Princeſs Amelia* b. 1711. *Princeſs Carolina* b. 1713.
11 3 *Sund. aft. Trin.* 4 ret. *Barnabas.*
14 Trinity Term ends in 24 days from Trin. Sund.
16 Sun and Clocks together.
17 St. Alban.
18 4 *Sunday after Trinity.*
20 Tranſ. Ed. K. Weſt Sax.
22 *King* GEORGE II. *Inaug.*
24 *St. John Bapt.** Second Quarter-day.
25 5 *Sund. aft. Trinity.* St. John's Col. Election.
26 *K.* GEORGE II. *procl.*
29 *St. Peter.**
30 Buck Hunting comes in and continues till Holy Rood. Ex. Col. Elec.

JULY xxxi Days.

2 6 *Sund. aft. Trin.* Viſit. Virg. Mary.
3 Dies Comitior.
4 Tranſ. St. Martin. Cambr. Commenc. firſt Tueſday of July.
5 Old Midſummer-day.
7 Thomas à Becket.
9 7 *Sunday after Trinity.*
11 Oxford Act 7 Days from Camb. Commencement incluſive.
15 Swithun.
16 8 *Sunday after Trinity.*
20 Margaret.
22 Mary Magdalen.
23 9 *Sunday after Trinity.*
24 Magdalen Col. Election.
25 *St. James.**
30 10 *Sunday after Trinity.* Dog-days begin. Sirius riſes with the Sun.

AUGUST xxxi Days.

1 Lammas-day.
6 11 *Sunday after Trinity.* Transfiguration.
7 Name of Jeſus.
10 St. Laurence.
11 *Princeſs Auguſta* b. 1737.
13 12 *Sunday after Trinity.*
15 Aſſumption.
20 13 *Sunday after Trinity.*
21 Athanaſius.
24 *St. Bartholomew.**
27 14 *Sunday after Trinity.*
28 St. Auſtin.
29 Beheading St. John the Baptiſt.
30 Sun and Clocks together.

SEPTEMBER xxx Days.

1 Giles.
2 *London burnt,* 1666, O. S.
3 15 *Sunday after Trinity.*
7 Eunurchus.
8 Nativity of the Bleſ. Virgin Mary.

9 Dog-days end. *Canis Major* riſes at 3 Morn.
10 16 *Sunday after Trinity.*
14 Exaltation of the Croſs, or Holy Croſs day.
17 17 *Sunday after Trinity.* Lambert.
20, 22, 23 Ember.
21 *St. Matthew.**
22 Equal Day and Night in all the World.
24 18 *Sunday after Trinity.*
26 Cyprian.
28 Sheriffs of London ſworn.
29 *St. Michael.* Third Quarter-day. Hare Hunting comes in, and laſts till the End of February.
30 Jerom.

OCTOBER xxxi Days.

1 19 *Sunday after Trinity.*
6 St. Faith.
8 20 *Sunday after Trinity.*
9 St. Dennis.
10 Oxford and Camb. Terms begin. Old Michaelmas-day.
13 Tranſ. K. Edw. Conf.
15 21 *Sunday after Trinity.*
17 Etheldred.
18 *St. Luke.*
22 22 *Sunday after Trinity.* K. GEORGE II. crowned, 1727.
25 Criſpin.
28 *St. Simon and Jude.**
29 23 *Sunday after Trinity.*

NOVEMBER xxx Days.

1 *All Saints.**
2 All Souls.
3 All Souls Col. Election. Cras Anim. 1 ret.
5 24 *Sunday after Trinity. Gun-Powder Treaſon,* 1605, O. S.
6 Leonard. Mic. Term beg.
7 Pr. Henry-Fred. b. 1745.
9 K. GEO. II. b. 1683, N.S. Lord Mayor's-day, Lond.
10 K. GE. II. Birth-day kept.
11 St. Martin.
12 25 *Sunday after Trinity.* Cras Mart. 2 ret.
13 Britius.
15 Machutus.
17 Hugh.
19 26 *Sunday after Trinity.* Oct. Mart. 3 ret.
20 Edmund.
22 Cicilia. Old Martinmas day.
23 Clement. Baliol College Election Thurſday before St. Andrew.
25 Prince William-Henry b. 1743. Catherine. Quind. Mart. 4 ret.
26 27 *Sunday after Trinity.*
28 Michaelmas Term ends.
30 *St. Andrew.** *Prin. Dowager of Wales* born, 1719.

DECEMBER xxxi Days.

3 *Advent Sunday.*
4 Barbary.
6 Nicholas.
8 Concept. of the B. V. M.
10 1 *Sunday after Advent.*
13 Lucy.
16 O Sapientia.
17 2 *Sunday after Advent.* Oxf. & Cam. Terms end.
18 *Princeſs Louiſa,* Queen of Denmark born, 1724.
20, 22, 23 Ember.
21 *St. Thomas.** Shorteſt day.
23 Sun and Clocks together.
24 3 *Sunday after Advent.*
25 *Chriſtmas day.** 4th Quarter-day. Fox Hunting comes in and laſts till Lady-day.
26 *St. Stephen.*
27 *St. John the Evangeliſt.*
28 *Holy Innocents.*
31 Sylveſter B. of Rome.

A TABLE ſhewing the *Dominical Letter*, at Sight, according to the *Gregorian*, or New Stile.

Hundreds of Years.

100	200	300	400
500	600	700	800
900	1000	1100	1200
1300	1400	1500	1600
1700	1800	1900	2000
2100	2200	2300	2400
2500	2600	2700	2800
2900	3000	3100	3200
3300	3400	3500	3600
3700	3800	3900	4000
4100	4200	4300	4400

Yˢ ab. Hds.				C	E	G	B A
1	29	57	85	B	D	F	G
2	30	58	86	A	C	E	F
3	31	59	87	G	B	D	E
4	32	60	88	F E	A G	C B	D C
5	33	61	89	D	F	A	B
6	34	62	90	C	E	G	A
7	35	63	91	B	D	F	G
8	36	64	92	A G	C B	E D	F E
9	37	65	93	F	A	C	D
10	38	66	94	E	G	B	C
11	39	67	95	D	F	A	B
12	40	68	96	C B	E D	G F	A G
13	41	69	97	A	C	E	F
14	42	70	98	G	B	D	E
15	43	71	99	F	A	C	D
16	44	72		E D	G F	B A	C B
17	45	73		C	E	G	A
18	46	74		B	D	F	G
19	47	75		A	C	E	F
20	48	76		G F	D A	D C	E D
21	49	77		E	G	B	C
22	50	78		D	F	A	B
23	51	79		C	E	G	A
24	52	80		B A	D C	F E	G F
25	53	81		G	B	D	E
26	54	82		F	A	C	D
27	55	83		E	G	B	C
28	56	84		D C	F E	A G	B A

USE. Under the Hundreds and againſt the odd Years ſtand the *Dominical Letter* or *Letters* for the Yea required, N. S.

Example. *Under* 1700 *and againſt* 58 *ſtands the Dominical Letter* A *for* 1758.

N. *B.* The *Dominical Letter* for 1 Hundreds ſtands under *thoſ*

A PERPETUAL DIARY; ſhewing, by the *Dominical Letter*, for any Year, the Day of the *Week* correſpondent to any Day of the *Month*, in that Year, *paſt*, *preſent*, or to *come*, either according to NEW or OLD STILE.

Months,	Dominical Letters.						
January, Octo.	A	B	C	D	E	F	G
Feb. Mar, Nov.	D	E	F	G	A	B	C
April, July	G	A	B	C	D	E	F
May	B	C	D	E	F	G	A
June	E	F	G	A	B	C	D
Auguſt.	C	D	E	F	G	A	B
Sept. Dec.	F	G	A	B	C	D	E
Days of the Month correſpondent to the 7 Week-Day Columns in order of Succeſſion, from the *Sunday* Col.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				

Sunday Col. is under the Dom. Let. for the Year; which Letter is to be ſought for to the Right of the M:h.

EXAMPLE. *To find on what Day of the Week the* 27*th of* July *happens,* 1758, *N. S. the Dominical Letter being* A *for that Year?*

To the Right of the Month, *July*, find the *Dominical Letter*, A, under which, at the Bottom, is the *Sunday* Column, wherein ſtand 2, 9, 16, 23, 30, all the *Sundays* in that Month; and reckoning forward to the Right, the next Column *Monday*, the next to that *Tueſday*, &c. round the 7 Columns from the *Sunday* Column, 27 will be found in the *Thurſday* Column, the Week-day required.

N. B. The Dominical Letter for *Old Stile* is uſed in the ſame Manner.

ROYAL DIARY, or EPHEMERIS, 1758. N. S.

LUNATIONS, or NEW, FULL, and QUARTER MOONS.

D.	January.	D.	February.	D.	March.	D.	April.
	h m		h m		h m		h m
2	☾ l.q. 4 52 a.	1	☾ l.q. 9 42 m.	2	☾ l.q. 10 56 n.	1	☾ l.q. 8 49 m
9	● n.m. 5 54 a.	8	● n.m. 4 41 m.	9	● n m. 2 53 a.	7	● n.m 12 31 n
16	☽ f.q. 9 43 m.	14	☽ f.q. 10 45 n.	16	☽ f. q. 2 21 a.	15	☽ f. q. 8. 0 m
24	○ f.m. 6 22 m.	23	○ f.m. 1 52 m.	24	○ f.m. 7 40 a.	23	○ f.m. 10 41 m
						30	☾ l. q. 3 45 a

D.	May.	D.	June.	D.	July.	D.	Auguſt.
	h m		h m		h m		h m
7	● n.m 10 3 m.	5	● n.m. 8 33 n.	5	● n.m. 8 36 m.	3	● n.m 10 49 n
15	☽ f.q. 2 22 m.	13	☽ f. q. 7 57 a.	13	☽ f.q. 0 4 a.	12	☽ f. q. 2. 23 m
22	○ f.m. 11 37 n.	21	○ f.m. 8 18 m.	20	○ f.m. 4 35 a.	18	○ f.m. 12 15 n
29	☾ l.q. 9 12 n.	28	☾ l.q. 1 29 m.	27	☾ l. q. 7 13 m.	25	☾ l. q. 3 36 a

D.	September.	D.	October.	D.	November.	D.	December.
	h m		h m		h m		h m
2	● n.m. 2 48 a.	2	● n.m. 7 41 m.	8	☽ f.q. 11 16 m.	7	☽ f. q. 7 18 n
10	☽ f.q. 3 5 a.	10	☽ f. q. 1 55 m.	15	○ f.m. 3 56 m.	14	○ f.m. 4 46 a.
17	○ f.m. 8 15 m.	16	○ f.m. 5 27 a.	22	☾ l. q. 3 59 a.	22	☾ l. q. 1 27 a.
24	☾ l. q. 3 51 m.	23	☾ l. q. 8 13 a.	30	● n.m. 4 34 a.	30	● n.m. 7 9 m.
		31	● n.m 12 32 n.				

CONJUNCTIONS of the MOON with the PLANETS.

D.	January.	D.	February.	D.	March.	D.	April.	D.	May.	D.	June.
	☽ h		☽ h		☽ h		☽ h		☽ h		☽ h
6	w. ♃ 12 n	3	w. ♃ 7 a	3	w. ♃ 10 m	4	w. ♄ 7 a	2	w. ♄ 4 m	2	w. ♀ 4 m
10	☿ 7 a	7	☿ 10 n	7	☿ 7 a	6	♀ 10 n	4	♀ 10 m	6	☿ 3 m
11	♄ 12 n	8	♄ noon	8	♄ 4 m	7	☿ 9 m	9	☿ 2 m	12	♂ 8 m
13	♀ 3 m	11	♀ 8 m	11	♀ 9 m	16	♂ 2 a	14	♂ 7 a	20	♃ 4 m
25	♂ 10 m	20	♂ 8 n	19	♂ 7 n	26	♃ 11 n	24	♃ 1 m	25	♄ 7 a
				30	♃ 6 a			29	♄ 1 a		

D.	July.	D.	Auguſt.	D.	Septemb.	D.	October.	D	Novemb.	D.	Decemb.
	☽ h		☽ h		☽ h		☽ h		☽ h		☽ h
1	w. ♀ 4 a	4	w. ☿ 2 a	4	w. ☿ 12 n	2	w. ☿ 11 n	3	w. ♂ 7 m	2	w. ♃ 1 m
3	☿ 1 a	8	♂ 6 a	6	♂ 1 a	5	♂ 9 m	4	♃ 8 m	2	♂ 5 m
10	♂ 12 n	13	♃ 6 a	10	♃ 4 m	7	♃ 5 a	9	♄ 4 m	6	♄ 1 a
17	♃ 9 m	19	♄ 8 m	15	♄ 4 a	12	♄ 11 n	29	♀ 7 a	29	♃ 10 n
23	♄ 1 m	30	♀ 3 a	29	♀ 12 n	30	♀ 10 m	30	☿ 10 n	30	♀ 1 m
31	♀ noon					30	☿ 3 a			31	♂ 4 m
										31	☿ 6 a

N. B. The *Moon* paſſes above *Jupiter* and below *Saturn* at each Conjunction, in 1758.

EXPLANATION of the CHARACTERS.

● n. m. *New Moon,*	○ f. m. *Full Moon,*	♄ *Saturn,*	♂ *Mars,*	♀ *Venus,*
☽ f. q. *Firſt Quarter,*	☾ l. q. *Laſt Quarter,*	♃ *Jupiter,*	☉ *Sun,*	☿ *Mercury.*

Note, ☽ joined with any Planet or Planets ſignifies that the *Moon* is that Day with that *Planet,* or thoſe *Planets,* as may be ſeen by the naked Eye; and will afford Pleaſure to thoſe who have good Glaſſes to behold them.

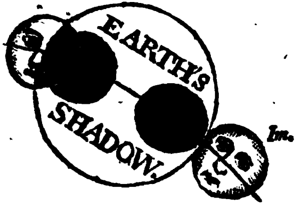
Five ECLIPSES: Two of the MOON and three of the SUN.

The ROYAL DIARY, or EPHEMERIS, 1758. N. S.

I. Of the *Moon*, *January* the 24th, for *London*, viſible as follows.

Moon Setting.

	h	m	s
Beginning	4	31	18
Immerſion	5	36	31
Middle	6	26	43
Emerſion	7	16	55
☽ 6° 12' Dig. eclips'd when her Center ſets allowing for Parallax & Refraction	7	48	22
End	8	22	18



Apparent Time in the Moon, London. Dr. Halley'*s Tables.*
T. Cowper.

The ſame by Mr. Charles Brent, *Author of the* Compendious Aſtronomer.

	h	m	s			h	m	s
Beginning	4	22	15	Appart. Time, Morn. *Lond.*	Dur. tot. Dar.	1	45	38
Beg. Tot. Darkneſs	5	27	48		Dur. of Eclipſe	3	56	44
Middle Eclipſe	6	20	37		Digits eclipſed	21 $\frac{7}{10}$.		
End Tot. Darkneſs	7	13	26					
End of Eclipſe	8	18	59					

N. B. This *Eclipſe* is ſo near being *central*, that, were it ſo, there would not be above 4 Seconds of Time more in the *whole Duration*. And the Moon is likewiſe ſo near her Apogee, as to make it *extreamly near* as great an Eclipſe as any of the Moon that can happen. *Cha. Brent.*

II. Of the *Sun*, *February* 8, about ½ an Hour after 4 in the Morn, and therefore inviſible in *England*.

III. Of the *Sun*, *July* 5, about 9 in the Morn, but inviſible.

IV. Of the *Moon*, *July* 20, between 4 and 5 in the Afternoon, and therefore inviſible.

V. Of the *Sun*, *December* 30, about ½ an Hour after 7 in the Morning, but inviſible.

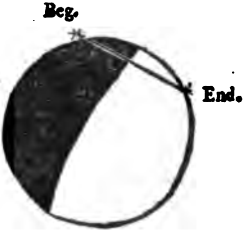
OCCULTATIONS *of a fixed Star, and of* Mars, *by the* MOON.

Occultation of a *fixed Star* in the left Knee of *Gemini*, will happen as follows, in a Sketch for the *Lizard Point*. By *T. Cowper*.

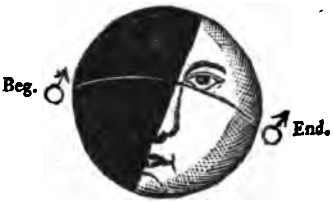
The ROYAL DIARY, or EPHEMERIS, 1758. N. S.

	h	m	s	P. M.
Beginning	8	54	2	Dr. *Halley*'s, Tables.
Middle	9	12	8	
End	9	29	52	

N. B. There will be no *Occultation* of this Star at *London*, it appearing there above the upper *Verge* of the Moon, at the viſible Conjunction.



Occultation of *Mars* at *Gibraltar*, as follows, on the 14th of *May*.



	h	m	s
Beg. or 1 Contact	6	36	22
Central Ingreſs	6	36	39
Immerſion	6	36	55
Mid. of Occult.	7	24	54
Viſible Conjunc.	7	25	46
Emerſion	8	10	42
Central Egreſs	8	10	59
Laſt Contact	8	11	15
Total Obſcurat.	1	33	47
Central Durat.	1	34	20
Whole Durat.	1	34	53

Apparent Time at *Gibraltar*, the 14th of *May*, 1758, Afternoon.

At *London* on *Whitſunday*-Evening the Moon's upper Limb paſſes about 1' ½ below the Planet *Mars*.—At *Bath* the Moon and the Planet will be nearly in Contact, in the *nonageſimal Degree*, about 24 Minutes after Seven. — At the *Lizard* Point *Mars* will be hid by the Moon a Quarter after Seven.

T. Cowper.

N. B. The *Parallactic Angles* were found at the *Beginning*, *Middle*, and *End* of the *Eclipſe*, and *Occultations*, whereby the Curves of the Moon's viſible Way were deſcribed.

N. B. Venus is an Evening Star till the 28th of *March*, when ſhe becomes a Morning Star, and ſo continues to the Year's End.

Jupiter is a Morning Star till the 5th of *June*, and from thence becomes an Evening Star to the 22d of *December* following.

On *May* 12 *Mercury* ſets about 2 Hours and ¼ after the Sun.

See the Royal Diary or Ephemeris, for 1758, continued, farther on.

To the MEMORY *of the late Right Honourable* HORATIO *Lord* WALPOLE.

STERN *Death*, at length, the buſy Scene has clos'd,
And a long *Silence* on thy Lips impos'd;
That Tongue is dumb, which erſt was *Faction*'s Dread,
Nor its lov'd Cauſe of *faithful Truth* can plead —
With *Patriot* Warmth, when *Party-rage* prevail'd,
And the ſtrong *Bulwarks* of the Realm aſſail'd,
Thy SOUL how great! and reſolutely good!
Firm, as a Rock, oppos'd Corruption's Flood;
Still vigilant to watch, with *Guardian*-eye,
Britannia's Rights, *Religion*, *Liberty*!
Thoſe ſacred Things, to ev'ry *Briton* dear,
Firſt in thy Thoughts, as in thy Language, were!
For theſe, thy indefatigable Zeal;
For theſe, thy Labours for the common Weal —
* When loud-mouth'd *Factions* in the SENATE roſe,
And *Britain*'s Sons were join'd with *Britain*'s Foes,
Then didſt thy Virtue in full *Luſtre* ſhine,
When *Reaſon* didſt thy *ruling Paſſion* join:
Then ſtoodſt thou forth the BULWARK of the STATE,
To ſave thy *Country* from impending Fate;
Still waſt thou foremoſt in the *Patriot Band*,
To ward Deſtruction from this envy'd Land. —
† When the *Succeſſion* to GREAT BRUNSWICK's *Line*
Was once attack'd, with traiterous Deſign
To *Britain*'s Throne, a *Bigot* to advance,
A Popiſh *Bigot*, and the Tool of *France*,
Then was thy Breaſt with noble Ardor warm'd,
Then with ſtrong Arguments thy Tongue was arm'd!
To vindicate thy ROYAL MASTER's Claim,
And blaſt the *Faction*, and defeat its Aim!
‡ The public Faith, by Parliament ſecur'd,
And from the Throne by Promiſes aſſur'd,
Eluded

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* *During the laſt Years of Queen* Ann's *Miniſtry, he ſtrenuouſly oppos'd the Meaſures then carried on againſt the Intereſt of the Nation.*

† *He vigorouſly oppos'd the* Harleian *Miniſtry, in their Attempts to ſet aſide the* Succeſſion *of the* Houſe of Hanover, *and bring in the* Pretender: *And, on the Death of the Queen, his Name was in the Liſt of thoſe Noblemen and Gentlemen, who ſigned an Inſtrument to proclaim* KING GEORGE *before his Arrival.*

‡ *King* WILLIAM's *Parliament had granted £.* 15,000 *a Year for the Support of the* French Refugees, *which had been paid them till*

Eluded long by miniſterial Art,
Thou with an honeſt Freedom didſt aſſert.
Thy *patriot Zeal*, how gloriouſly it ſhone!
When to ſecure the Barrier of the Throne,
Sapp'd by Intrigues, by *Traitors* undermin'd,
A Sacrifice to *Popery* deſign'd,
To pleaſe an exil'd *Vagabond* confeſs'd,
(A Puppet-king, of Crowned-heads the Jeſt,)
Thy Soul reſolv'd to do thy Country Right,
Thy Paſſions then did all in one unite;
At once the Kingdom of its Fears to rid,
§ You ſet a Price on his deteſted Head,
On which theſe Traytors would have plac'd the Crown,
And this fair Conſtitution overthrown.
‖ When TYRANT LEWIS, ſeiz'd with furious Zeal,
Inſpir'd by *Prieſts*, thoſe Delegates of Hell,
His *pious Subjects* ¶ through the Land purſu'd,
And, in their Blood, his guilty Hands embru'd;
Or, in dark Dungeons laid, he let them pine,
Or galling Chains and Galleys ſome confine;
Then GRACIOUS GEORGE, a Friend to the diſtreſs'd,
His *Chriſtian* Brethren ready to aſſiſt,
Touch'd with their mournful Cries and righteous Cauſe,
Would try to wreſt them from the *Lyon's Paws*.
To thee, HORATIO, he the Truſt commits,
A Truſt, which well thy *Clemency* befits;
Thee with th'*important Character* inveſts,
To bear to haughty LEWIS his Requeſts;
" *That his poor ſuff'ring* Subjects *he would eaſe*,
" *And from the Preſſure of his Hand releaſe*;
" *That* Conſcience *might with Freedom bear the Sway*,
" *Whoſe ſacred* Dictates *Heav'n bids to obey*;
" *That he the Cauſe of* Innocence *would hear*,
" *And trampled Virtue's languid Head would rear*;

" *That*

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till within four Years of the Queen's Death, but refuſed by that Miniſtry. When King GEORGE *came to the Crown, Mr.* Walpole *moved the Houſe to continue the Payment, which was granted.*

He likewiſe moved for Payment of the Arrears due to the Hanoverian Troops, *which had been ſtopt by the* Harleian *Miniſtry, amounting to £.* 65,000.

§ *He moved the Houſe that a* Reward *of £.* 100,000 *might be given to any one who ſhould apprehend the* Pretender; *and Proclamation was thereupon publiſhed for that Purpoſe.*

‖ *In the Year* 1724, *he was ſent Ambaſſador to the* French *Court to mediate in Behalf of the poor perſecuted* Proteſtants *in that Kingdom; but without Succeſs.*

¶ *Proteſtants.*

"*That, to the pious perſecuted poor;*
"*He would the Comforts of their Lives reſtore;*
"*Thus would ten Thouſand Bleſſings on him fall;*
"*And Heav'n itſelf be the Reward of all.*"
REASON, in vain, the *Tyrant*'s Ear aſſails,
For Reaſon's loſt where *Bigotry* prevails;
Truth, and perſuaſive *Eloquence*, a Jeſt,
Where Faith is pinn'd on a dictating *Prieſt*;
As THOU, GREAT STATESMAN, by Experience taught,
Could not undo what *Jeſuits* had wrought.
What Toils inceſſant, through the varied Scene
Of thy invaluable Life, have been!
Thy Labours various, but the Object one,
The public Good, and Safety of the Throne.
In private Life how happy were thy Friends!
Thy *Service* Cordial which to all extends!
Merit, in thee, a noble Patron had,
And Numbers reſt their Fortune on thy Aid:
To thee alone was Goodneſs not confin'd,
Thy Kindred all beam Bleſſings on Mankind!
THEE Heav'n deſign'd an univerſal Good,
And laſting Years and Faculties beſtow'd.‖
Thy grateful Country, by their **frequent Choice*,
Confeſs'd thy Merits with acclaiming Voice;
Thy valued Services thy PRINCE has own'd,
And with †*new Dignity* thy Virtues crown'd:
Heav'n of thy great *Integrity* approv'd,
And thee to Realms of Happineſs remov'd.

‖ *He died at the Age of 79 Years.*

* *He ſat in the Houſe of Commons near 50 Years.*

† *A little before his Death he was advanced to the Peerage, by the Stile and Title of* HORATIO WALPOLE, Baron WALPOLE, of *Woolterton*, in the County of *Norfolk*.

Upnor-Caſtle, *Sept.* 10, 1757.

Of the SYSTEM *of the* SUN, PLANETS, *and* COMETS, *according to Sir* Iſaac Newton.

THE *ſix* primary Planets are revolved about the *Sun*, in Circles concentric with the Sun, and with Motions directed towards the *ſame Parts*, and almoſt in the ſame Plane. *Ten* Moons are revolved about the *Earth*, *Jupiter*, and *Saturn*, in Circles concentric with them, with the ſame Direction of Motion, and nearly in the Planes of the Orbits of thoſe Planets. But it is not to be conceived, that *mere mechanical Cauſes* could give Birth to ſo many regular Motions: ſince the *Comets* range over all Parts of the Heavens, in very eccentric Orbits. For by that Kind of Motion they paſs eaſily through the Orbs of the Planets, and with great Rapidity; and, in their *Aphelions*, where they move the ſloweſt, and are detained the longeſt, they recede to the greateſt Diſtances from each other, and thence ſuffer the leaſt Diſturbance from their mutual Attractions.

This moſt beautiful SYSTEM of the *Sun*, *Planets*, and *Comets*, could only proceed from the *Counſel* and *Dominion* of an INTELLIGENT and POWERFUL BEING. And if the *fixed Stars* are the Centers of other like *Syſtems*, theſe, being formed by the like *wiſe Counſel*, muſt be all ſubject to the Dominion of ONE; eſpecially ſince the Light of the *fixed Stars* is of the ſame Nature with the Light of the *Sun*, and from every *Syſtem* Light paſſes into all other *Syſtems*. And leſt the *Syſtems* of the *fixed Stars* ſhould, by their Gravity, fall on each other mutually, HE hath placed thoſe Syſtems at immenſe Diſtances one from another.

The NATURE *of* GOD, *or of the* SUPREME BEING, *according to Sir* Iſaac Newton.

THIS BEING governs *all Things*, not as the *Soul* of the World, but as *Lord* over all: And, on Account of his Dominion, he is wont to be called *Lord God* παντοκρατωρ, or *Univerſal Ruler*. —For *God* is a relative Word, and has Reſpect to Servants; and *Deity* is the Dominion of God, not over his own Body, as thoſe imagine who fancy God to be the Soul of the World, but over Servants. The SUPREME BEING is a Being *eternal*, *infinite*, *abſolutely perfect*; but a Being, however perfect, without Dominion, cannot be ſaid to be *Lord God*; for we ſay, *my God*, *your God*; the *God of Iſrael*, the *God of Gods*, and *Lord of Lords*; but we do not ſay my Eternal, your Eternal, the Eternal of *Iſrael*, the Eternal of Gods; we do not ſay my *Infinite*, or my *Perfect*: Theſe are Titles which have no Reſpect to Servants. The Word *God* uſually * ſignifies *Lord*; but every Lord is not God. It is the Dominion of a *Spiritual Being* which conſtitutes a *God*; a true, ſupreme, or imaginary *Dominion* makes a true, ſupreme, or imaginary *God*. And from his true Dominion it follows, that the true God is a *living*, *intelligent*, and *powerful Being*; and from his other Perfections, that he is ſupreme or moſt perfect. He is *eternal* and *infinite*, *omnipotent* and *omniſcient*; that is, his Duration reaches from Eternity to Eternity; his Preſence from Infinity to Infinity; he governs all Things, and knows all Things that can be done. He is not Eternity or Infinity, but *eternal* and *infinite*;

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* *Dr.* Pococke *derives the* Latin *Word* Deus *from the* Arabic du (*in the oblique Caſe* di) *which ſignifies* Lord. *And in this Senſe Princes are called Gods.* Pſalm lxxxvii. *v.* 6. *And* John x. *v.* 35. *And* Moſes *is called a God to his Brother* Aaron, *and a God to* Pharaoh, Exodus iv. *v.* 16. *and* viii. *v.* 8. *And in the ſame Senſe the* Souls *of dead Princes were formerly, by the Heathens, called* Gods, *but falſely*; *becauſe of their Want of* Dominion.

He is not Duration or Space, but he *endures* and is *preſent*; and by exiſting *always*, and *every where*, he conſtitutes Duration and Space.

Since every Particle of Space is *always*, and every indiviſible Moment of Duration is *every where*, certainly the *Maker* and Lord of all Things cannot be *never*, and *no where*. Every *Soul* that has Perception is, though in different Times, and in different Organs of Senſe and Motion, ſtill the ſame *indiviſible Perſon*. There are given ſucceſſive Parts in Duration, co-exiſtent Parts in Space, but neither the one nor the other in the Perſon of a Man, or his *thinking Principle*, and much leſs can they be found in the *thinking Subſtance of* GOD. Every Man, ſo far as he is a Thing that has *Perception*, is one and the *ſame Man* during his whole Life, in all and each of his Organs of Senſe. *God* is the ſame *God* always and every where. He is omnipreſent, not *virtually* only, but alſo *ſubſtantially*; for Virtue cannot ſubſiſt without Subſtance. In *Him* * are all Things contained and moved; yet neither affect the other. God ſuffers Nothing from the Motion of Bodies; Bodies find no Reſiſtance from the *Omnipreſence* of God. It is allowed by all that the *Supreme God* exiſts *neceſſarily*; and by the ſame Neceſſity he exiſts *always* and *every where*.

Whence alſo he is all *ſimilar*, all *Eye*, all *Ear*, all *Brain*, all *Arm*, all *Power* to *perceive*, to *underſtand*, and to *act*; but in a Manner not at all human, in a Manner not at all corporeal, in a Manner utterly unknown to us. As a *blind* Man has no *Idea* of Colours, ſo have we *no Idea* of the Manner by which the *All-wiſe God* perceives and underſtands all Things. He is utterly void of all Body, and bodily Figure, and conſequently is neither to be ſeen, nor heard, or touched, nor ought he to be worſhipped under the Repreſentation of any corporeal Thing. We have Ideas of his *Attributes*, but what the *real Subſtance of any Thing is we know not. In Bodies we ſee only their Figures and Colours, we hear only the Sounds, we touch only their outward Surfaces, we ſmell only the Smells, and taſte the Savours; but their inward Subſtances are not to be known, either by our Senſes, or by any reflex Act of our Minds*; much leſs then have we any Idea of the SUBSTANCE OF

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* *This was the Opinion of the Antients. So* Pythagoras *in* Cicero *de Nat. Deor. lib.* I. Thales, Anaxagoras, Virgil *Georg.* lib. IV. *v.* 220. *And* Æneid *lib.* VI. *v.* 721. Philo-Allegor, *at the Beginning of lib.* I. Aratus *in his Phænom. at the Beginning. See alſo the ſacred Writers, as St.* Paul, *Acts* xvii. *v.* 27, 28, *St.* John's *Goſpel, Chap.* xiv. *ver.* 2. Moſes, *in Deut.* iv. *v.* 39. *and* x. *v.* 14. David, *Pſal.* cxxxix. *v.* 7, 8, 9. Solomon, 1 *Kings* viii. *v.* 27. Job xxii. *v.* 12, 13, 14. Jeremiah xxiii. *v.* 23, 24. *The Idolaters ſuppoſed the* Sun, Moon, *and* Stars *the Souls of Men, and other Parts of the World to be Parts of the* Supreme God, *and therefore to be worſhipped; but erroneouſly.*

God. We know him only by his moſt wiſe and excellent *Contrivances of Things*, and *final* Cauſes; we admire him for his Perfections; but we reverence and adore him on Account of his *Dominion*. For we adore him as his *Servants*; and a *God*, without Dominion, Providence, and final Cauſes, is Nothing elſe but *Fate* and *Nature*. Blind metaphyſical Neceſſity which is certainly the ſame always, and every where, could produce no Variety of Things. All that Diverſity of natural Things which we find ſuited to different Times and Places, could ariſe from Nothing but the *Ideas and Will of a Being neceſſarily exiſting*. But, by Way of Allegory, God is ſaid to *ſee*, to *ſpeak*, to *laugh*, to *love*, to *hate*, to *deſire*, to *give*, to *receive*, to *rejoice*, to be *angry*, to *fight*, to *frame*, to *work*, to *build*. For all our Notions of God are taken from the *Ways of Mankind*, by a certain *Similitude*, which, though not perfect, has ſome Likeneſs however. And thus much concerning God; to diſcourſe of whom from the Appearances of Things does certainly belong to natural Philoſophy.

General *Scholium*, B. III. P. 388, *Principia*.

A *Vacuum* being only ſo in reſpect of all Space not being *equally full* of Matter, or with an *etherial* Fluid, the Impoſſibility of an abſolute *Vacuum* is proved from God's *Omnipreſence*, thus:

——————— *I am, who fill*
Infinitude: nor vacuous *the Space*;
Though I, uncircumſcrib'd myſelf, retire
And put not forth my Goodneſs; which is free
To act, or not: Neceſſity *and* Chance
Approach not Me; *and what I will is* Fate.

Milton's Par. Loſt. B. VII. L. 168.

Sir *Iſaac Newton*'s *Scholium*, abovementioned, concludes thus,

Concerning the NATURE *of* SPIRIT.

A moſt *ſubtil Spirit* pervades and lies hid in all groſs Bodies, by the Force and Action of *which Spirit* the Particles of Bodies mutually attract one another at near Diſtances, and cohere, if contiguous. And *electric* Bodies operate to great Diſtances, as well repelling, as attracting the neighbouring *Corpuſcles*. And Light is *emitted*, reflected, refracted, inflected, and heats Bodies; and all Senſation is excited, and the Members of animal Bodies move at the *Command of the Will*, namely, by the Vibrations of *this Spirit*, mutually propagated along the ſolid Filaments of the Nerves, from the outward Organs of Senſe to the Brain, and from the Brain into the Muſcles.

The *Laws*, by which this *elaſtic* and *electric* Spirit operates, muſt be demonſtrated and determined from Sufficiency of Experiments.

Of the Nature and Origin of MATTER. *According to Sir* Iſaac Newton.

IT ſeems probable to me that GOD, in the Beginning, formed MATTER in *ſolid, maſſy, hard, impenetrable, moveable* Particles, of ſuch *Sizes* and *Figures*, and with ſuch other *Properties*, and in ſuch Proportion to *Space*, as moſt conduced to the End for which he formed them. And, that theſe *primitive* Particles being *ſolid*, are incomparably harder than any porous Bodies compounded of them; even ſo very hard, as never to wear or break in Pieces: no ordinary Power, being able to divide what *God himſelf* made *one* in the firſt Creation. While the *Particles* continue entire, they may compoſe Bodies of one and the ſame Nature and Texture, in all Ages: But ſhould they wear away, or break in Pieces, the Nature of Things depending on them, would be changed. *Water* and *Earth* compoſed of old worn Particles, and Fragments of Particles, would not be of the ſame Nature and Texture now, with *Water* and *Earth* compoſed of entire Particles in the Beginning. And therefore, that Nature may be laſting, the Changes of *corporeal* Things are to be placed only in various *Separations*, and new *Aſſociations* and Motions of theſe *permanent* Particles; compounded Bodies being apt to break, not in the Midſt of ſolid Particles, but *where* thoſe Particles are laid together, and only touch in a few Points.

Hence may the *Reaſon* be aſſigned concerning the Diverſity of Bodies. For *Particles* which touch one another by large Surfaces, by a mutual Attraction of their Parts, compoſe a very *hard Body*. Particles which are not ſo ſtrongly attracted or entangled with each other, compoſe a Body which is *brittle*.

If they touch one another in *leſs* Surfaces, then the Body is not ſo hard as the brittle, but may be more ſolid. If they only approach each other without being one under another, the Body is *elaſtic*, and will ſpring to its priſtine Form. If they ſlip under each other the *Body is ſoft*, and eaſily ſubmits to any Colliſion, or Stroke, as that of a *Hammer, &c.* If they ſcarcely touch one another 'tis a *crumbling Body*, or one whoſe Parts may be eaſily ſeparated. If they are ſmall, round, ſlippery, and eaſily agitated by Heat, it is then a *fluid Body*. If the Particles are of an equal Surface, and hooked or entangled with one another, 'tis then a *flexible* or *pliant Body*.

N. B. We ſhall deſcribe the Meaſure, Denſity, Bulk, Motion, Forces, and other Properties of Matter or Bodies, in future Palladiums; and there exhibit the moſt uſeful and diſtinguiſhed Parts of Science, and of all the Newtonian *Philoſophy extracted from the* Principia! *&c.*

NEW ÆNIGMAS.

By Mr. CHRISTOPHER MASON.

WHEN *Eden* Gates the Serpent firſt aſſailed,
And SIN and DEATH in *Paradiſe* prevailed,
An *Evil Spirit* did this Globe poſſeſs,
Whoſe Firſt Deſcent is merely but to gueſs.
The *Fact* relate, when you have heard the Tale,
How this *Fell Fiend* both Men and Beaſt aſſail.
How *Brute* to *Brute* communicates the Peſt,
In diſmal Dole, where e'er it gets poſſeſs'd,
And Man and Brute, will mercileſs infeſt.
Dreadful to all — except ſome learned *Wight*
Should conjure, and allay the fatal Spright!
A late learned Author, in his Works declare,
All Mankind of this ——— has a Share:
Some more, ſome leſs, in various *Mode* and *Guiſe*,
Some ne'er will own it, others will diſguiſe.
Sometimes, in Flights, it ſtrongly *Operates*,
And imperceptibly it actuates.
Moſt feel th' Effects, the *Hero* and the *Slave*,
The Cit and Ruſtic, Coward and the Knave,
Let every Artiſt from this *Viper* fly,
Expel the *Poiſon*, and th' Effects defy,

An ÆNIGMA. *By Mr.* Thomas Vaughan, *near* Morpeth, *in* Northumberland.

BOTH Earth and Trees, and Fire and Art,
In forming me have each a Part,
But which of theſe have greateſt ſhare
The Ridling wits will ſoon declare.
From me's diſtill'd a healthful Draught
Which cures Diſtempers very oft.
What I perform, I need not tell
Already I am known ſo well.
I oft, when you are rack'd with Pain
When other Medicines prove in Vain,
Reſtore you to your Health again.
All Maladies which Quacks pretend
To cure, but cheat you in the End,
At very ſmall Expence I do
Perform with Eaſe and Safety too.
I give a Name t' a numerous Race,
By which I'm known in ev'ry Place,
Whene'er the *Phœnix* does expire,
Another ſprings out of the Fire;
So I (to throw off the Diſguiſe)
Out of my Parents Aſhes riſe,

ÆNIGMA. *By Mr.* Chriſtopher Maſon.

FROM the prolific pregnant Womb of Earth
Did firſt proceed my *primogenious* Birth;
Who, in my *Prime*, was ſeiz'd by furious Foes,
Who ſtruck me down, then ſtript me of my Cloaths;
And ſtrait to *Priſon* hurried me away,
Nor Bail, nor Main-priſe, did my Journey ſtay;
But quickly was my direful Sentence paſt,
And I ſtraitway into cold Water caſt.
From thence repriev'd, I was to *Bed* convey'd,
Where kindly Warmth and Vigour gave me Aid.
I pregnant grew, my Race to propagate,
But my harſh *Goaler* did my Like defeat.
But when I teem'd, my Young advanc'd a-pace,
I, Strumpet-like, was toſs'd from Place to Place;
And not allow'd one Sort of Nutriment,
Till Life in me, at laſt, was almoſt ſpent.
When in this Plight with toſſing to and fro,
My kinder Fate ordain'd the *Bagnio*;
Where I receiv'd paſt *Vigour* once again,
But did not long my priſtine Shape retain.
Polyphemus, with pond'rous Rocks, in Rage,
Cruſh'd my ſoft Sides his Fury to aſſwage;
But when the *Cyclops* had done all he could,
I was transform'd, like *Acis*, to a *Flood*.

N. B. More of theſe Ænigmas, to pleaſe the Ladies, for next Year.

The QUERIST.

NEW QUERIES.

I. QUERE 76. *By* Curioſa.

SUPPOSE the Arches of *London* Bridge to be damned, or cloſely ſtopped up, at Time of *Low-water*, what *Effect*, at *London*, would the Tide produce at next High-water? And what would be the Difference of Height of a *Spring-tide* in ſuch a Caſe, and the Height of a *Spring-tide* with all the Arches of *London Bridge* open?

II. QUERE 77. *By Mr.* Chriſtopher Maſon.

WHENCE proceed thoſe *green Circles*, or Parts of *Circles*, ſeen upon *Sheep-downs*, and other Paſture-lands?

III. QUERE 78. *By* Orthodox.

WHETHER *Life*, *Senſe*, &c. in Animals, ſpring from *mere Matter*, or material Subſtance of the *Egg*, by the *Cauſe* of Heat only *ſuperadded*, contrary to the *Berkleyian* Principle of *no Matter* exiſting, and Nothing but *Spirit* and *Ideas* in the World?

IV.

IV. QUERE 79. *By* Honeſtus.

WHAT is the *beſt Remedy* for a *drunken, profligate* Wife? And how may a Huſband beſt return the Compliment of a Wife given to oblige other Men?

V. QUERE 80. *By* Honorius.

HOW far do *Vice* and *Folly* contribute to the *Benefit* of others? And who are thoſe that *live* and *thrive* by the *Vice* and *Folly* of others? And ſince the Great BEING brings *Good* out of all Kinds of *Evil*, how far may *private Vices* be conſidered as public *Benefits*?

VI. QUERE 81. *By* Philoſophia.

AS all the planetary Bodies are probably inhabited, and ſome of thoſe Bodies (particularly the *Moon*) are thought to have no ſurrounding Atmoſphere, *what would follow* if our Atmoſphere was taken away, and the Inhabitants of this Earth were yet able to live? As a late Author of a *voluminous Work* of Aſtronomy has ſuppoſed they may live without an Atmoſphere?

VII. QUERE 82. *By a* Widow.

WHY do *drowned Perſons* lie ſo long under Water before they riſe and float?

VIII. QUERE 83. *By Mr.* Stapley, *of* Scots-float, *near* Rye.

SUPPOSE the *Tide* flows 13 Feet high into a *Canal* 120 Feet wide at 3 Miles from the Sea in 2 Hours and a Half; and if the ſame Canal is reduced by a Sluice, a Quarter of a Mile from the *Sea*, to an Opening only of 40 Feet Breadth to admit the Tide up, *Quere*, What Height will the Water flow in the ſaid *Canal* (of Breadth and Length from the *Sea* as given) in the Time aforeſaid?

IX. QUERE 84. *By* Inſpector.

WHETHER Mr. *Simpſon*'s late pretty Book, entitled *Miſcellaneous Tracts on ſome curious and intereſting Subjects*, pretending to determine the leſs *lunar Equations* from a *mechanic Principle*, &c. (leaving the Reader to ſtrike out the Light) is not like a *Tinder-box*, or a *Dark-lanthorn*? And wherein does it excel the *Principia* of Sir *Iſaac Newton*?

X. QUERE 85. *By an* Inkle-Weaver.

WHICH is the moſt ingenious and reputable Profeſſion, a *Fortune-teller*, *Almanac-maker*, *Haberdaſher* of Mathematical Problems, or Mrs. *Phillips*'s Trade in *Half-moon Street*, near the *Strand*?

Yet, by *hereditary Right*,
In which there lies ſo great a *Bite*,
No better could he merit.
8. Now for the *Point* that's in Debate,
How could this be, I beg relate,
This is the grand Diſpute;
Clear theſe *Deſcents* at *common Law*,
Let all be done without a Flaw,
Or be for ever mute.
See that no *Point of Law* you bring,
Claſhes with any other;
I've ſaid enough—GOD SAVE THE KING,
And *Peace to one another*.
This is *hereditary Right*,
For which I do contend;
But as to *J——s's* — bid good Night—
And ſo I make an End.

N. B. It is no ſtrange Thing that the common People ſhould be ignorant of the Laws of their own Nation, ſince here is an old Attorney *in* Cheſter, *who has been a* Practitioner *above* 40 *Years ago; who poſitively aſſerts, That in caſe a Man has* Lands in Fee *in* England, *and* no Sons *to inherit, that they will neceſſarily go to his Brother, or Brother's Son, if there be any ſuch; or, to the moſt remote of the* male Iſſue, *rather than to any Daughter.—And if the Lands in* Fee *be in* Wales, *for Default of Sons, that they will deſcend to all the Daughters ſucceſſively, as Lands in Fee do to the* Sons in England—*And, that this* (as he ſays) *is by a* Statute *of* Wales, *which he cannot produce, made in the Reign of* Edward II. *who was born in* Carnarvon-Caſtle.—*Strange! that any one, eſpecially an* old Practitioner, *ſhould be ſo ignorant! Since there is no ſuch Statute, amongſt thoſe for* Wales, *can be found; and no ſuch Law, as he ſays there is, in* England. *So that* Welch and Engliſh Law *are with him both alike — He denies all Authority but his own. Sir* Edward Coke *has no Weight with him—And* Giles Jacob *is but a F—.*

NEW QUESTIONS.

I. QUESTION 131. *By Mr.* Chriſtopher Maſon.

A PERSON, by his WILL, left to his *Son* and *Daughter* the Value of *Ten Thouſand Pounds*, the Square of the Son's Part being multiplied by the Daughter's Part, the Product will be the *greateſt poſſible*: Required their reſpective Shares?

II. QUESTION 132. *By the ſame* Gentleman.

TO find that Number whoſe *Cube* being ſubtracted from its *Square* ſhall leave the *greateſt Remainder* poſſible?

III. QUESTION 133. *By Mr.* A. Brooke.

TO divide a *given Number* into four ſuch *Parts*, that when any *other Number* be added to the firſt *Part* thereof, deducted from the ſecond, multiplied by the third *Part*, and the fourth *Part* be divided by that Number, the *Sum, Difference, Product* and *Quotient* ſhall be equal?

IV. QUESTIO 134. *Ex Dom.* GEORGIO HICKS, *Ludimagiſtro de* Reedneſs, *in Comitatu* Eboraci.

DATIS, in his duabus Equationibus,

$$\left.\begin{array}{l} y\sqrt{x}+\frac{y}{x}=16{,}25=b \\ x\sqrt{y}+\frac{x}{y}=36=c \end{array}\right\}\text{ x \& y } \textit{duobus Valeribus expoſtulatis?}$$

V. QUESTIO 135. *A Dom.* THOMAS HUNTLEIO.

DIVIDATUR Numerus 54 *in Partes quatuor,* v, x, y, z, *ità ut Cognatas ut ex his coſlentur Æquationes hic duæ*

$$3v+4x+5y+6z=256.$$
$$9v+6x+20y+8z=656.$$

VI. QUESTIO 136. *Ab eodem* ARMIGERO,

SI x & y *Latera duo Trianguli plani deſignant,* $2x^2+3y^2=435$, et $2x^3+3y^3=4485$; quinetiam *Secantes Angulorum* Baſis *eam* Proportionem *ad ſe, invicem tenent, quam* 3 : 2; Quanta *Baſis?*

VII. QUESTIO 137. *Ab Dom.* Alexandro Rowe.

ANNO 1757, *Aprilis* 12*mo, Latitudine* 50° 6′, *Armiger empſit Aream, pro* £6 6*s*; *quæ Area terminata erat Umbris quæ factæ erant (vigeſima prima Horâ, et prima Horâ Diei) Arbore* 46 *Pedes Altitudine. Requiro Magnitudinem Areæ, et pariter quantum per Jugerum Armiger dedit?*

VIII. QUESTION 138. *By the ſame* Gentleman.

THE Sum of the *Departures* of two Ships at Sea, from a certain Part = 84 Leagues; the Departure of the *Weſtermoſt* Ship exceeded that of the *Eaſtermoſt* 12 Leagues; and the *Ratio* of their Diſtances run as 3 to 4: Required their reſpective *Diſtances* run, Difference of *Latitude*, and *Departure?*

IX. QUESTION 139. *By the* Author.

A *Father* agreed to give his *Daughter* a *Fortune* of 5000*l.* to be paid the Huſband at ſo much each Day from the Day of Marriage, on which Day he was to receive the firſt Payment, ſo much the next Day, and ſo on in a *decreaſing* geometric *Progreſſion*, ſo as the *whole Fortune* may be paid in 365 Days after the Day of *Marriage*, and the *laſt* Day's Pay to be 20 Shillings: *Quere* the firſt Day's Pay, and *Ratio* of *Continuance*?

X. A New QUESTION *(in Navigation)* 140. *By Mr.* G. Rubes.

IF a Ship ſails from the Latitude of 49° 55′ on a conſtant Courſe 2729,7455075 Miles, in N. Lat. finds herſelf in Diff. of Longitude 303° 44′: Required her *Courſe*, according to 69½ Miles in a Degree of *Latitude*?

XI. QUESTION 141. *By Mr.* Smith.

IF two Ships in Lat. 30° N. ſail S.S.W and S.W. by W. to two Ports, whoſe Difference of Departure = ½ a Mile; required their *Latitudes*, *Departures*, and *Diſtances* ſailed?

XII. QUESTION 142. *By Mr.* G. Rubes.

SUPPOSE a horizontal Plane 1000 Feet long, at the End of which let a heavy *Ball* be laid, and let that End of the *ſame Plane* be drawn uniformly upwards, againſt an *upright Plane*, at the Rate of 1 Foot *per Second* of Time: It is required from thence to find the *greateſt Aſcent* of the *Ball*, and the Time of its Motion, before it quits the *Plane*?

XIII. QUESTION 143. *By* Analyticus.

A *Debtor* agrees to pay off his *Debt* of 40*l.* in 52 Weeks, at ſo much *per Week*, and each Week to pay 4 Shillings leſs than on the former: What muſt his *firſt* and *laſt* Payment be?

XIV. QUESTION 144. *By* Navigator.

ON the 5th of *April* 1756, being at Sea, I obſerved the Sun's *Amplitude* at Riſing, and then the Increaſe of his *Azimuth* from Riſing, at 10° of the Sun's Altitude, to be 5° 30′. in what *Latitude* was I then? And what was the Time of Sun Riſing that Day, and alſo the Time of my *ſecond Obſervation*?

⁂ *Whoever ſolves the following Queſtion before the Firſt of* March *next, has a* Chance *by Lot for* 12 Palladiums *(equal to* 24 Ladies Diaries) *which will be delivered in* London, *according to Direction given.*

PRIZE-QUESTION. *By the* Author.

TO give a *ready*, *near*, and NEW METHOD, for determining the Times of the *New*, *Full*, and *Quarter* MOONS, from thoſe which have been determined? Or, to determine the *New*, *Full*, and *Quarter* MOONS for *Auguſt* 1759, from thoſe which have been determined for *Auguſt*, or any other Month, in ſome preceeding Year? And, *likewiſe*, to determine the Moon's *Riſing* and *Setting (very near)* from her former Riſing and Setting? Suppoſe for the 10th of *April*, 1759, *London*, from her Riſing and Setting on the ſame, or any other Day, in ſome *preceding Year*?

ANSWER *to the* Prize-Ænigma *in* Palladium, 1757. *By Mr.* Chriſtopher Maſon, *who claims the* 4 Palladiums.

AN EQUAL, or EQUALITY.

On Adam *taſting the forbidden Fruit.*

WAS ſhe thy GOD, that her thou didſt obey
Before *his Voice*? or was ſhe made thy *Guide*,
Superior, or but EQUAL? that to Her *Prize*.
Thou didſt reſign thy *Manhood*, and the Place
Wherein God ſet thee above her, made of thee,
And for thee: Whoſe Perfection *far excell'd*
Hers in all *real* Dignity. Adorn'd
She was indeed, and lovely, to attract
Thy Love, not thy Subjection: and her Gifts
Were ſuch, as under Government, well-ſeem'd;
Unſeemly to *bear Rule*: which was thy Part,
And *Perſon*, hadſt thou known thyſelf aright.
MILTON *Par. Loſt*. B. 10. l. 145.

N. B. *Miſs* Green *and Miſs* Freeman *claim the other* 3 *and* 2 Palladiums, *whoſe Anſwers were a little too long to inſert.*

ANSWERS to the QUERIES in the DIARY and PALLADIUM, 1757.

I. QUERE 63, *anſwered by* Caſuiſticus.

THE *principal* Obligations from *Father* to *Son*, in a *Lineal* Deſcent from *Adam*, are the ſame as *Adam*'s divine Obligations were to his Sons, in Conſequence of himſelf having received *Life*, *Support*, and *Benefits* from GOD; on which Account, as each Father is the *final* or inſtrumental Cauſe of his Son's Exiſtence, (in the *Series* of connected Cauſes, originally derived and flowing from God) he is bound in Ties of Duty and Gratitude to his Maker, for *Exiſtence* and *Benefits* received, to be *inſtrumental*, (according to his Ability, and the Way in which *Providence* has placed him) in providing for his Son's *Support*, *right Education*, and *Happineſs*: tho' *Providence* often (we ſee) interferes to provide for the Son's Happineſs beyond the Father's Ability; who therefore ought not to be upbraided by the Son, or any Perſon, for what *He cannot do*; or for *Providence* being the better Parent. According to God and Nature's Law, *(encreaſe and multiply)* our Obligations to Him and *Nature*, for Exiſtence, no Man is excuſeable for omitting or neglecting to propagate his *Species*; for, if *Life* is eſteemed a *Bleſſing* that we enjoy (which is by all allowed) and is the Property of a Being that may, by exiſting, become *infinitely* happy, *certainly*, that Bleſſing ought to be communicated from Father to Son, by which the *Crime of Proſtitution* appears, as being deſtructive of the human Species; and againſt which Puniſhments, by God and Men, are denounced. But at the ſame time, the *Ways of Providence* may reſtore what *Vice* and *War* deſtroy: As all Things whatſoever (compounded of intellectual and material, or of material Subſtance only) ever exiſted in their original *Principles*, and ſtill continue to exiſt by *Change*, ſince the *Act* of Creation! Which Creation would be defective, if the *Paſſions* or *Vices* of Men could hinder its *final Intent*.

Some *Philoſophers* and *Moraliſts*, (*Seneca* in particular) excuſe the Son of any Obligation to the Father, *merely* for being the *final Cauſe* of his preſent Exiſtence, in which they make the Father to be only the *accidental* Cauſe, deſigning only his own Gratification of a *pure* Paſſion, or looſer Deſire. In which *Gratification*, (whether lawful or otherwiſe, according to the different Syſtems of Government among Men) the Laws of God, and his Providence in Nature, are evidently concerned, ever producing *Good*, even from *Ill*. And if a Man comes into a State of Exiſtence, whereby he may become infinitely happy, through the *providential* (though blind) Agency of his Father, he owes that Father *Reſpect*, as being the *Inſtrument* of that Providence which produced him: Who is to be regarded and honoured as ſuch, for having made him the inſtrumental Cauſe of numerous other human Beings. For we honour and regard that Man who *providentially* (though undeſigned) *ſaves many of our Lives!* or, *who providentially confers a Benefit on us for Life!* The *principal* human Obligations from the Son to the Father are for the Father's Care of his Son's Education, and the human Benefits and Happineſs he *deſigned* his Son; but the *divine Obligation* of the Son to the Father (for being the *providential* Cauſe of his Exiſtence) is not excluded by any *human Obligation* he owes him, for having intended, or done, more or leſs Service to his Son: ſince all human Service intended may not take Effect.

And, for the other Part of the Anſwer, our *laſt* Parents, in *lineal* Deſcent, are no more culpable for Misfortunes and Diſappointments befalling us (depending on our ownſelves) than our firſt Parents are blameable for what has happened to their ſeveral *Succeſſors*, through their own Miſconduct; except ſo far, at any Time, as thoſe Parents may have neglected to cultivate the Minds of their Children with right Principles and Education, according to their Ability; which Duty, though ſtrictly incumbent, *Providence* ſometimes ſupercedes by beſtowing a ſuperior Happineſs.

To ſeek *Blame* for Misfortunes, from the *connected* Cauſe of our *Lineage*, as the Means whereby all *Pleaſure* and *Pain* arrived to each individual Succeſſor, would be as unreaſonable as to ſeek

Blame for Miſfortunes, ariſing through our own Miſconduct, from our original Parents; or even from the Cause that permitted the different Modes of *Exiſtence*, or *Pleaſure* and *Pain* to be in the World.

As the Support and right Education of a Man's own Children is one of his greateſt Duties to *God*, *Himſelf*, and *Society*, ſo the Support and Care of a *ſpurious Iſſue* (the worſt of all *Cheats*, and yet ſo very common) cannot be by any Man too carefully avoided! on which the *Wiſe-Man* has obſerved, That *a virtuous Woman is a Crown to her Huſband—She is more precious than Rubies*. Proverbs.

II. Quere 64, *anſwered by* Academicus.

ACCORDING to Mr. *Locke*, in his Eſſay on human Underſtanding, the *principal Cauſe* of all human Actions, depending on the *Will* of the Agent, is *Uneaſineſs*, by which every Perſon is moved to act; from whatever Impreſſion or Conſideration that *Uneaſineſs* may ariſe.

III. Quere 65, *anſwered by* Prudentia.

THE *Paſſions* (having their deſigned Uſes) are regulated and rightly directed by *Reaſon*, *Religion*, and *Morality*.

IV. Quere 66, *anſwered by a* Ragman.

BREACHES of Contract, Promiſes, and ſolemn Engagements, are *plauſibly excuſed* by pretending a *ſcrupulous* Exactneſs to fulfil them, while the Breach is kept open and continued wider and wider.

Neglects and *Omiſſions* of all Kinds are *excuſed* by charging the *Blame* on the Accuſer, and aſſigning the *fictitious* Cauſe of thoſe Neglects and Omiſſions to him. Or telling an innocent Untruth *(not eaſily detected)* will be ſufficient to render an *honeſt Man* excuſable for not performing his Promiſes, or of paying a *Debt* he owes; and for *poſtponing* the Payment thereof to the Diſadvantage of another: waiting for Anſwer from abroad already received, but not *communicated*.

Truth is proved to be *Falſhood* by affirming the Truth of what is *falſe*; and Falſhood is proved to be Truth by calling that Falſhood *which is ſo*.

Thus, if *Honorius* affirmed that *Scoundrelius Prevaricator Plaguy-troubleſome* of St. Saviour's *Block-Head**, Southwark, is a Ragman of *Probity* and *Honour*, it would be *true* that ſuch an Affirmation is made of the *Falſhood*; and the Falſhood would be *Truth* if it were affirmed that the ſaid *Scoundrelius Prevaricator Plaguytroubleſome* had put no Man to Expence and Trouble, beyond making him Satisfaction; and had fulfilled all his ſolemn Engagements, Promiſes, and Contracts; maintaining an unblemiſhed Character, ſurpaſſing that of his late ingenious Brother Mr. *Edmund Curl*, Ragman of *Covent-Garden*.

V.

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* *Quere Dockhead.*

V. QUERE 67, *anſwered by a* Sailor.

Admiral *B——g*'s *Qualities* being examined on the Loſs of *Minorca* to this Nation, were found to be of equal *intrinſic* Value, *(not to ſay defective, one more than another)* which *Gentleman of Honour*, perſiſting in his Judgment, Innocence, and Bravery, died to prove his *Worth.*

VI. QUERE 68, *anſwered by the* Preſident *of the* Robinhood-Club, *near* Temple-bar.

WE are firſt to conſider, Gentlemen, how a Man would appear, being decked with all the *Barber*'s or *Peruke-maker's* Ornaments without any of the *Taylor*'s; and, on the other Hand, *Gentlemen*, we muſt conſider what Sort of a Figure a Man would make, being furniſhed out with all the *Taylor*'s Ornaments without any of the *Barber*'s. A Man, *Gentlemen*, may wear *Horns*, his own *Hair*, *ſhave himſelf*, and want no Help or Ornament from the *Barber*; but I humbly conceive, that no Man can appear like a *Gentleman*, as many in this Club appear, without the Help *(and very conſiderable Help!)* of the *Taylor*, who is the chief Support of a *Gentleman's Character*, and conſequently is very much of a Gentleman himſelf, and much more reputable by Profeſſion than a *Barber—And ſo put the Porter about!*

VII. QUERE 69, *anſwered by* Parochialis.

COMMON SENSE (in the genuine Acceptation) is little underſtood by *mere Mathematicians, (Woolwichenſes, Birchoverenſes, Landenians, Simpſonians, Marmaduke Hogſons, &c.)* being chiefly the Talent of PHILOSOPHERS, and not of the *Vulgar*. Some we find attempting to *read* who cannot rightly ſpeak or pronounce *Syllables*; others attempt to *write* for the Public, by Means of *Amanuenſes*, who cannot *ſpell* common Words, or write common *Engliſh*. And the great *Speaker*, Mr. *Quin*, aſſures us, that moſt of our *Teachers* cannot read *Milton* with common Propriety.

The great Philoſophers recited, *Socrates, Plato, Cato, &c.* by teaching the *Wiſdom, Morals*, and *Happineſs* of human Life, not only illuſtrate and inculcate, but exemplify the *Bible-Doctrines* againſt *all Kinds of Profligates*; ſhewing the preſent Diſadvantage of Vice and Importance of Virtue to our preſent (and conſequently future) Happineſs. And it is evident that Nothing more than the Contemplation of the Heavens can direct our Minds to the OBJECT of our ſolid and laſting Happineſs.

VIII. QUERE 70, *anſwered by* Novicus.

THE Sun's Expence of Fire, and conſequently of Heat and Light, Sir *Iſaac Newton* thinks may be ſupplied by the Lodgment of *Comets* on the Sun's Surface, after having performed their other Offices in the Heavens.

For farther Anſwer ſee Pall. 1750. *p.* 27.

IX. QUERE 71, *anſwered by* Uranius.

THE principal or intended Uſe of *Saturn*'s Ring is not yet *agreed* on among *Aſtronomers*, (though its Nature is ſurprizing) and the famous Dr. *Keil* thinks we may never come to the Knowledge of its Uſe. But we may infallibly infer this Uſe from its wonderful Contrivance, that it ſerves to manifeſt in an extraordinary Manner, the infinite *Power*, *Wiſdom*, and *Glory* of God! and to excite our Adoration of his *Greatneſs*, in this particular *Inſtance* of his admirable Work of Creation!

X. QUERE 72, *anſwered by* Civicus.

THE *exploſive* Effect or Force of *Gunpowder* conſiſt in the *Medium* of Air confined in the Gun, (a wonderfully *elaſtic Body*) being agitated and expanded with prodigious Velocity by the Action of the *Powder*, whereby the *impulſive* Force, or Velocity, of that elaſtic Air, is communicated to the Ball; which is driven along accordingly, through the external or unexpanded Air, till, by its *Reſiſtance* of the Matter, the Motion of the Ball entirely ceaſes. For, if *Gunpowder* is fired in *Vacuo*, its Force or Effect would be Nothing. And hence in the pure *etherial* Regions, (void of *Medium*) that are deſcribed by *Milton*, Gunpowder could be of no Service to the *rebellious fighting Powers*; though it might be deemed, by Mr. *Milton*, a *diabolical* Invention upon Earth.

N. B. Generation and Life in all Animals and Vegetables may inſtantaneouſly *ſpring from the exploſive Effect of an* Aura, *put into Heat and Motion by* ſeminal Contact, *or inteſtine* Fermentation.

XI. QUERE 73, *anſwered by* Mr. Brown.

WIND, in general, being Nothing but a *Current of Air* moving from the denſer to the rarer Part of the Atmoſphere in any Direction, to reſtore the *Æquilibrium*, (the Spot of Meeting from ſeveral Parts being tempeſtuous, and ſubject to Hurricanes, *&c.*) the different and conſtant Directions of theſe Motions from the *Poles* both Ways towards the *Æquator*, conſtitute an oblique Motion, or *Trade-Wind*, conſtantly blowing from the *North-Eaſt* and *South-Eaſt*, to about 30° Latitude on each Side of the Equator, where thoſe Parts are over the open Ocean, and not affected with the Reflection of the Sun-Beams from the heated Surface of the *Land*; in which Caſe the Wind always ſets in upon the *Land*, as is obſerved on the Coaſt of *Guinea*, and other Parts of the *torrid Zone*. The *Monſoons* likewiſe are occaſioned by a complicated *Current* of Air reſulting from the *Seaſon* of the Year; blowing in different, or contrary Directions. And theſe Winds have Degrees of Velocity, which may be meaſured.

The *Tides* and *Ebbs* proceed from the joint *Attractions* of the *Sun* and *Moon* upon the *Sea* (but chiefly from the Moon's Action above that of the Sun's) whereby, from a mixed Motion compounded out of both Attractions, all the *different* Kinds of Tides, and their Quantities happen. *See Prop*. 24. *B*. 3. *Principia*.

XII. QUERE 75, *anſwered by* Seneca.

Seneca ſays, that all Things are produced of *Cauſe* and *Matter*: *i. e.* are *finally* produced.

PRIZE-QUERE *anſwered by* Amelia.

VIRTUES and Vices of Mankind depend on the *Conſciouſneſs of their Practice*, or on a good or ill Intention, and no farther; and not on Accident or Chance. And therefore — *Idiots* or *Madmen* have never been deemed capable of either *Virtue* or *Vice*, or of wilfully doing Good or Harm; but are looked on (from whatever Cauſe their *Idiotiſm* or *Madneſs* has ariſen) to be *blameleſs* for all their Actions; as they are *diſmal* Inſtances of the *Caſualties* in human Nature.

In a Man's *rational* State of Mind he is culpable or inculpable for what he does, or leaves undone, ſo far as he is *conſcious* that he is free to act, in Conſequence of his *Will* or Mind's Reſolution, being *ſelf-determined*, and no further. — Whereas his *Will* may be determined, or reſtrained to act, by *Perſuaſion*, or *Deluſion* from others, or Threats of his Wife; or be *inſpired for ſome End*.

ANSWERS *to the* QUESTIONS *in the* Diary and Palladium, *for* 1757.

I. QUESTION 115, *anſwered by Mr*. Chriſ. Maſon.

$\frac{g^2+o^2+d^2}{g+o+d}=10\frac{11}{25}$, and $g+o+d=25$, whence GOD is the unfathomable *Secret*.

SOLUTIO *à Dom*. Huntleio.

Data,

1 $\frac{x^2+y^2+z^2}{x+y+z}=10\frac{11}{25}$

2 $x+y+z=25$

Eſto $x=\frac{1}{2}y$, *ut hæc Aſſumptio fiat neceſſe eſt, alioqui Quæſtio non erit determinata*

4 $\frac{x^2+y^2+z^2}{x+y+z}=\frac{261}{25}$

5 $x^2+y^2+z^2=261$

6 $x^2+4x^2+z^2=261$

7 $x=\overline{25-z}\div 3$ per Eq. 3.

8 $x^2=\overline{625-50z+z^2}\div 9$.
$=\overline{261-z^2}\div 5$

9 $14z^2-250z+776=0$.

10 $z=\frac{250}{14\times 2}-\sqrt{\frac{250\times 250}{14\times 14}-\frac{776}{14}}=4$, *quam proximè* = D, unde $x=7=$G, et $y=14=$O, *adeoque* Nomen *inveſtigandum eſt Anglicè* GOD.

The

The ſame anſwered by Mr. William Allen.

PUT $x-a$, x, and $x+e$ for the 3 Numbers ſought. Then, we have $3x+e-a=25$; and $9x^2+6xe-6xa+ee-2ea+a^2=625$. Likewiſe $3x^2+2xe-2xa+e^2+a^2=261$. Now if from 3 Times this laſt Equation the former be ſubtracted, we have $2ee+2ae+a^2=158$, or $e^2+ea+aa=79$. And upon Trial I find 3 and 7 to be the only Values of *a* and *e*, in *whole Numbers*: Whence, $3x+7-3=25$, and the 3 Numbers required are 7, 14, and 41 anſwering to GOD.

The ſame was likewiſe anſwered by Mr. *Alexander Rowe*, in Verſe; *Monimia, Probus, Cheſterfieldienſis*, and ſeveral others.

II. QUESTION 116, *anſwered by Mr.* Will. Allen.

IN the Second Equation, which I apprehend ſhould be $\overline{\frac{x^3+z^3}{x+z}-\overline{\frac{x+z}{2}}}\Big|^2 \div \sqrt{\frac{x-z}{2}}=28{,}637$, we ſhall have $x^2-xz+z^2-\frac{x^2+2zx+z^2}{4}\left(=\frac{3x^2-6xz+3z^2}{4}\right)\div\sqrt{\frac{x-z}{2}}=28.637$. And $\frac{9x^4-36x^3z+54x^2z^2-36xz^3+9z^4}{8\times\overline{x-z}}=820.077769$; That is, $x^3-3x^2z+3xz^2-z^3=\frac{8\times 820.077769}{9}=728.958$: Whence $x-z=9$ *very near*.

And, in 1ſt Equation, as $w=x$, we have $2^{\frac{5}{2}}\times\overline{x^2-z^2}\Big|^3+\overline{x+z}\Big|^3=28292323.6$, *That is*, $5.65685424\times\overline{x^6-3x^4z^2+3x^2x^4-z^6}+x^3+3x^2z+3xz^2+z^3=28292323.6$; Now, if the 1ſt *Part* of the Equation be divided by $\overline{x-z}\Big|^3=729$, we have $729\times5.65685424\times\overline{x^3+3x^2z+3xz^2+z^3}+x^3+3x^2z+3xz^2+z^3=28292323.6$.

Or, $x^3+3x^2z+3xz^2+z^3=6859$, and $x+z=19$: but $x-z=9$; Therefore $x=14$, and $z=5$. Then, *in 3d Equation*, *x*, *z*, *w* being known, it will become $2^y-2^{y-1}+2^{y-5}+2^{y-9}=2184$, where, if 2 be *continually* multiplied into *itſelf* till the *Product* exceeds 2184, the *Index* of the firſt Power that exceeds it will be $=y=12$, exactly anſwering the Equation.

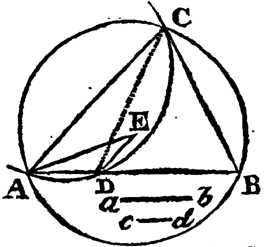
In 4th *Equation*, all the Quantities being known, but *v* and *u*, we have, $v^5u^5+285810vu=116584181$.

And, in the 5th *Equation*, $v^5u^3=82572791$, which being ſubtracted from that above, we have, $28581vu=34011139$, and $vu=119$

$vu=119=7\times 17$: Whence $v=7$, $u=17$, $w=14$, $=x$, $y=12$, and $z=5$, anſwering to GROOME.

Cheſterfieldienſis ſolved the ſame.

Reſolutio QUESTIONIS III. & 117, *à Dom.* Huntleio.



CONSTRUCTIO. *Ducito* AD $=$ *Dif. Baſis Angulorum, et per Prop.* 33 *Lib.* III. Euc. deſcribe Circuli Segmentum ACD, *quod Capax* ſit Anguli $=$ Dif. Baſis *Angulorum*; *exhibent* ab, cd, Rationem *inter* Radium Circuli *Triangulum includentis et Lineam à Centro ad Punctum* D *ductam*; *deindè inveni Lineam, quæ ſe habeat ad Radium Circuli* ACD, *ut* cd : ab; *tum à Puncto* A *deſcribatur Arcus Radio ſupra memorata, itemque à* Puncto D *alius Radio* $=$ *Linea proximè inventa*; *Arcus hi ſe invicem in* E *Centro Circuli circumſcripti ſecabant*; *poſtremò Radio* EA *deſcribe Circulum* ACR, *et ductis* CB, DB, *erit* ABC *Trigon ille queſitus.* Q. E. F.

DEMONSTRATIO. Ducatur Linea CD, tum Angulus ACD $=\angle$CDA $-\angle$A $=\angle$CBA $-\angle$A id eſt Dif. Baſis Angulorum, ex Conſtructione; Seeundò, ex WARDI *Theoremate* 17mo, Radius Circuli ACD $=$ Radio Circuli ABC, ſed ut $ab:cd::$ Radius Circuli ACD : DE, itaque, ut $ab:cd::$ Radius Circuli ABC : DE; undè patet, Conſtructionem accuratam eſſe.

Cheſterfieldienſis conſtructed and ſolved the ſame.

IV. QUESTION 118, *anſwered by Mr.* Thomas Huntley, *the Propoſer.*

1. PUT $r=10$ the Radius of Convexity, $d=144$, the Diſt. of the Candle from the Vertex of Incidence, $a=17$, $b=11$, $x=$ the Forcal Diſt. from the ſaid Vertex, after the firſt Refraction; Then, by a *dioptric Theorem*, $x=\frac{adr}{ad-\overline{d+r}\times b}$; Say, $a:\overline{d+r}::b:c$, then, by Subſtitution, $x=\frac{dr}{d-c}=$ 32,4668.

2. Put $f=16{,}76127$ the forcal Diſt. after the laſt Refraction, $z=$ the forcal Diſt. after the 3d Refraction, then, by the ſame Theorem, $z=\frac{arf}{\overline{r+f}\times b-af}=\frac{rf}{e-f}$ ($=302{,}09$) by making $ae=\overline{r+f}\times b$.

3. Put $t=\frac{1}{20}$, the Thickneſs of the Glaſs, $p=r-t=9{,}95$; $P=x-t=32{,}4168$; $v=$ focal Diſt. after the Second *Refraction*,

$=$

$m =$ Sine of Incidence, $n =$ Sine of Refraction, then $v = \dfrac{m\rho\rho}{mp + n\rho - np}$, put $s = \dfrac{\rho}{p}$, and $ſ = 1 - s$, then by Subſtitution, we get $v = \dfrac{m\rho}{m - ſn}$.

4. Put $q = \underline{z + t =} 302,14$; $\underline{b = ,15}$ the Thickneſs of the Vacuity, then $\overline{\rho + v - b} \times q : \overline{\rho + q} \times \overline{v - b} :: n : m$.

Therefore, $mq\rho + nqv - mqb = nv\rho + nvq - nb\rho - nbq$; Whence, $v = \dfrac{mq\rho - mbq + nb\rho + nbq}{n\rho + nq - mq} = \dfrac{m\rho}{m - ſn}$; Suppoſe $m = 1$, and reduce the Equation, and it will give $n = 1,159$, whence $m : w :: 44 : 51$. Q. E. F.

V. QUESTION 119, *anſwered by Mr.* Alexander Rowe.

BY Mr. *Emerſon's Navigation,* The Lat. Lizard 49° 55′ N. Long. 5° 14′ W. of *London* : Iſland of *Antigua* in Lat. 17° N. Long. 59° 20′ W. of *London*. And, conſequently, *Antigua* 54° 6′ Long. W. of the *Lizard*.

By P. 93 of the before quoted Book, I find the Tangent of the Courſe = 53° 10′ S. Weſterley from the *Lizard* to *Antigua*, and Diſt. = 3294,5 Miles. Again, by Spherics, the ∠ of Poſition at the *Lizard* = 107° 15′, and the ∠ of Poſition at *Antigua*, = 40° 1′. Hence the Diſtance of thoſe two Places, on the Arc of a great Circle = 3253 Miles, which is 41,5 Miles leſs than by *Mercator Sailing* : Whence the *greateſt Diſt*. of the different *Tracks*, over the Ocean, by *Mercator-Sailing*, and *Great Circle* Sailing, may be computed —— *Quere how ?*

VI. QUESTION 120, *anſwered by Mr.* Will. Allen.

LET s, t, v, u, w, x, y and z repreſent the alphabetical Numbers required.

$$\begin{array}{r|r|l}
 & 1 & -s - t + v + u + w + x + y + z = 69 \\
 & 2 & s - t - v + u + w + x + y + z = 51 \\
 & 3 & s + t - v - u + w + x + y + z = 33 \\
\text{Then} & 4 & s + t + v - u - w + x + y + z = 17 \\
 & 5 & s + t + v + u - w + x + y + z = 25 \\
 & 6 & s + t + v + u + w - x - y + z = 37 \\
 & 7 & s + t + v + u + w + x - y - z = 55 \\
 & 8 & -s + t + v + u + w + x + y - z = 77 \\
\hline
\text{Sum} \div 4 & 9 & 4s + 4t + 4v + 4u + 4w + 4x + 4y + 4z = 364 \\
 & 10 & s + t + v + u + w + x + y + z = 91
\end{array}$$

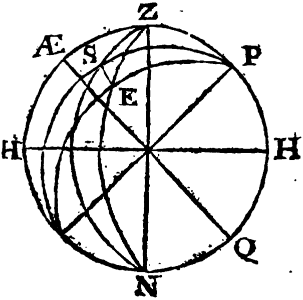
Now ſubtracting each of the former 8 *Equations* from the laſt 9th *Equation*, and dividing the Remainder by 2, we ſhall have,

10 $s + t = 11$
11 $t + v = 20$
12 $v + u = 29$
13 $u + w = 37$
14 $w + x = 33$
15 $x + y = 27$
16 $y + z = 18$
17 $z + s = 7$
Now aſſume $s =$ 1, 2, &c. till it correſponds.

Whence s is found $= 2$. And the Reſt follow of Courſe, *viz*: $t = 9$, $v = 11$, $u = 18$, $w = 19$, $x = 14$, $y = 13$, and $z = 5$, and thence the Name of the *Town* required is BILSTONE, near KANK, near *Darliſon*, on which *Sol* never ſhone.

Mr. *Thomas Huntley* ſolved this Queſtion in the ſame *elegant Manner*, in Terms of *Latin*; which were the only Solutions we received.

Reſolutio QUESTIONIS VII. *et* 121, *à Dom.* Hunteio.



1°. IN *Diagrammate* contiguo, data $\angle$ SPE = Dif. *Syderum* rectarum Aſcenſionum = 34° 0′, Latus PS = 77° 15′, et Latus PE = 81° 47′, quæ ſunt horum Syderum Declin. complementa; Fiat ergo, a = Sin. m = Coſ. 77° 15′; b = Sin, n = Coſ. 81° 47′; c = Coſ. 34° 0′; r = Radio; dein $abc + mnr \div r^2$ = Coſ. SE = 8318363 = Coſ. 33° 42′ 44″.

2°. *Ex Ephemeride Regiâ*, Solis Aſcenſio recta Die *Junii* viceſimo, Mediâ Nocte eſt 89° 52′ 21″ = 5 ho. 59m 29s, quare de 17h 23m deme 5h 59m 29s, et 11h 23m 31s reſtabunt, quo Tempore *Serpentis Caput* Meridianum attinget; de 19h 39m, item ſubduc 5h 59m 29s, reſtabunt 13h 39m 31s, quo Tempore *Aquilæ Lucidiſſima* Meridiem attinget.

3°. Sit p = Sin. g = Coſ. SE = 33° 42′ 44″, q = Sin. b = Coſ. ZE = 32° 56′; s = Coſ. ZS = 29° 50′, tum $trs - qbr \div pg = ,5611098$ = Coſ. $\angle$ ZES = 55° 52′ 2″.

4°. Fiat ergo, ut Sin. 33° 42′ 44″ : S. 34° 0′ :: S. 77° 15′ : S. 79° 19′ 6″ = $\angle$ PES; quare 79° 19′ 6″ − 55° 52′ 2″ = 23° 27′ 4″ = $\angle$ ZEP.

5to. Sint *g*, & *b*; *b* & *n*, ſicuti ſupra, *d* = Coſ. 23° 27′ 4″ erit $\overline{bad+bmr} \div r^2 = ,6135870$ = Coſ. 52° 9′ 2″, unde *Latitudo* quæſita erit = 37° 50′ 58″.

Denique — S. 52° 9′ 2″ : S. 23° 27′ 4″ :: S. 32° 56′ : S. 15° 54′ 9″ = 1h 3m 36s, quod de 13h 39m 31s ſub-ducito, et reſtabunt 12h 35m 55s, quo quidem Tempore Obſervationes factæ erant. Q. E. F.

But *Cheſterfieldienſis* makes the Latitude 30° 22′; Time of Night 9h 41m: Who conſidered the Bright Star in the *Eagle* of the ſame R. A. with the Head of the *Serpent*, though given different.

The AUTHOR'S METHOD *of Solution.*

A PRACTICAL PROPOSITION. *Having two Sides of a Spherical Triangle, with the ∠ between them, given, to find the third Side?*

RULE I. Add the Log. verſed Sine of the included ∠, (when leſs than 90°) and the Log. Sines of the two Sides together, the *Sum* (deducting twice the Radius) will be the Log. of a Number to be found, (equal to the *natural* Sine of that Logarithm's Degrees) which being *added* to the natural verſed Sine of the *Diff.* of the two given Sides, the *Sum* will be the natural Verſed of the *third Side ſought.*

But if the contained ∠ included is greater than 90°,

RULE II. Add the Log. verſed Sine of its *Supplement*, and the Log. Sines of the two Sides together, the *Sum* (deducting twice the *Radius*) will be the Log. of a Number to be found, (equal to the natural Sine of that Logarithm's Degrees) which being *ſubtracted* from the natural verſed Sine of the *Sum* of the two given Sides, the *Remainder* will be the natural verſed Sine of the *third Side ſought.*

N. B. The above Propoſition *is of great Uſe to compute the Diſtances of Places on the Earth, on the Arch of a great Circle, from their Longitudes and Latitudes given, and the Diſtances of* Stars, *whoſe right Aſcenſions and Declinations, or Longitudes and Latitudes, are given: Whence the Altitudes of* two *Stars, or* two *Altitudes of the Sun, with the Time between the Obſervations, or Difference of Azimuth, being obſerved, at any Time off the Meridian, the Latitude may be eaſily determined.*

The natural verſed Sine of an Arc above 90° is had by adding the *Radius* to the natural Sine of the *Exceſs* of Degrees above 90° And the *Log. verſed Sines* for Degrees above 90° are had by adding 0.3010300 to *twice* the Log. Sine of ½ the Arc, deducting Radius.

VIII. QUESTION 122, *anſwered by Mr.* Alexander Rowe.

BY Mr. Emerſon's *Navigation, Caſe* 5, *Mercator's Sailing, p.* 103. As T. Courſe 49° 59′ 10″ : Rad. :: Dif. Long. = 53° = 3180 Miles, : Meridional Dif. Lat. = 2670 Miles: The Lat.

Lizard being 49° 55′, the *meridional Parts* correſponding, from the *Tables*, = 3467, from which ſubtract 2670 the Remainder = 797 will be the *Meridional* Parts of the other *Latitude* 13° 10′ *(by Table)* nearly of *Barbadoes*, required.

By Caſe 2, *Plain Sailing, p.* 85, *ſame Author.*

As Coſ. Courſe 40° 0′ 50″ : Dif. between the two Latitudes 2205 Miles :: Rad. : Diſt. in Miles = 3429, *required.*

Mr. Thomas Huntley *ſolves the ſame* QUESTION, *by* Theorems *at p.* 31, Palladium 1757.

	Logarithms.
As Tan. Courſe . 49° 59′ 10″ . . .	89.9240274 co.
To Tan. *Conſt. Arc* 51 38 9 . . .	10.1015104
So Diff. Long. 53° in Minutes 3180 . .	3.5024271
To Dif. Log. Tan. of ½ Comp. Lat. .3372,600	3.5279649

Lat. Lizard 49° 55′

Co. Lat. . 40 5 Half 20° 2′ ½ Tan. 9.5620477

{ Dif. Log. Tan. of ½ Comp. Lat. + for the *greater* ½ Comp. . . . . . . } 3372600

Half Comp. Lat. *ſought* 38° 25′ . . . . . . Tan. 9.8993077

Doubled is Co. Lat. . . 76 50

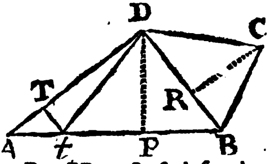
Complement 13 10 the *leſs* Lat. ſought, *viz.* of [*Barbadoes.*

36 45 Diff. Lat. = 2205 Miles or Min.

Now, As Coſ. *Courſe* 40° 0′ 50″ : *Dif.* Lat. in Minutes, 2205 :: Rad. : *Diſt. run* betwixt the two *Places*, 3429,38 *Miles, required.*

Cheſterfieldienſis correctly ſolved it in the ſame Numbers.

IX. QUESTION 123, *anſwered by Mr.* Will. Allen.



IN the *little* △ ATt, there is given ∠ A = 41° 48′ 37″, and Sides AT and At = 2.5 and 3.680348, from which, *by a well-known Axiom,* I find the ∠s ATt and AtT = 95° 40′ 47″½ and 42° 30′ 35″ ½; and then the Side Tt = 2.466514. Now, in the *Iſoſceles* △ TDt, all ∠s being known, and likewiſe the Side Tt, the Side TD = tD = BD *per Queſt.* is found = 12.461515, and conſequently AD = 14.961515.

Again, in the *Iſoſceles* △ tDB, all the ∠s being known from what is already found, the Perp. DP = 9.977889, and the Baſe tB = 14.939926 is found; and conſequently AB = 18.620274.— *Laſtly*, in the △ BCD, the Side BC being given, the Side BD and ∠ DBC being already known, the Perp. CR is found = 8.49705, whence the Area of the *Cloſe* = 145.838571576, *&c. Square-Chains*, or 14 Acr. 2 R. 13,417145 P.

The

The ſame QUESTION *anſwered by Mr.* Alexander Rowe.

IN the above △ AT*t*, there is given AT = 2.5, A*t* = 3,68, *&c.* and △ TA*t* = 41° 48′ 37″, to find ∠ AT*t* = 95° 39′ 15″, ∠ A*t*T = 42° 32′ 7″ and T*t* = 2.465; then in △ TD*t*, there is given ∠ DT*t* = ∠ D*t*T = 84° 20′ 45″; and T*t*, (as before) to find TD = D*t* *(per Queſt.)* = DB = 12,51 Chains.

Now (180° − 42° 32′ 7″ + 84° 20′ 45″ = 53° 7′ 8″) in △ D*t*P, is given ∠ D*t*P = 53° 7′ 8″, the right ∠ and D*t* = 12,51 to find DP = 10, and *t*P = PB *(per Fig.)* = 7,509. — Alſo, in right ∠^d △ BRC is had (118° 30′ − 53° 7′ 8″ = 65° 22′ 52″) ∠ CBR = 65° 22′ 52″. And BC = 9.35, to find CR = 8.5; whence the *Content of the Meadow* = 14 A. 2 R. 26½ P. W. W. R.

Cheſterfieldienſis found the Content 146,668 Sq Chains, without the Trouble of finding the Perpendiculars DP and CR.

Inveſtigatio *a Dom.* Huntleio.

DUC BD et DP ⊥ AB, nec non CR ⊥ BD, et fac BD = x; BP = y, AT = 2,50 = a; A*t* = 3,680348 = b.

c = Coſ. ∠A 41° 48′ 37″, r = *Radio*; his factis Subſtitutionibus,

1 $c : \overline{b+y} :: r : \overline{a+x} \therefore \overline{b+y} = \overline{a+x} \times c$

2 $2y + b : 2x + a :: a : b \therefore 2by + b^2 = 2ax + ax,$

3 $y = cx + ac - b = \dfrac{2ax + a^2 - b^2}{2b}$, hac *Æquatione* reducta,

4 $x = \dfrac{a^2 + b^2 - 2abc}{2bc - 2a} = 12{,}50$, et $y = ax + ac - b = 7{,}50$;

quibus inventis erit ∠ ABD = 53° 7′ 48″; adeoque ∠CBD = 65° 22′ 12″, et CR = 8,49993, unde *Capacitas* invenietur eſſe 14 Ju. 2 Qu. 24 Per. Q. E. I.

Mr. *George Hicks* of *Reedneſs*, in *Yorkſhire*, ſent us his Solution in *Latin*.

X. QUESTION 124, *anſwered by* Cheſterfieldienſis.

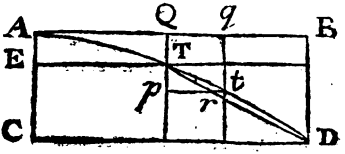
AMONG the Rules in *Jones's Synopſis Palmariorum*, p. 211, for purchaſing Annuities, according to Diſcount, allowing compound Intereſt, we have (*Caſe* 2.) $a = \dfrac{x^n \times \overline{x-1} \times s}{x^n - 1}$. Here a = the *Annuity*, s = the Sum of ready Money to be paid down, = 1000 *l.* n = the *Years*, = 20; and x = the *Amount* and *Intereſt* of 1 *l.* for 1 Year, = 1,05, or 5 per Cent. the *higheſt* Rate of Intereſt, by the *Laws of England*: Otherwiſe the *higher* the Intereſt the *greater* the Annuity, as is evident by making the foregoing

going Expreſſion a *Maximum*, when x and alſo a will be an *infinite Quantity*.

From $x=1{,}05$ at 5 per Cent, a the Annuity will come out $=80{,}2425\,l.$ Now, (by *Caſe* 1.) in the ſaid *Synopſis*, $a-\frac{a}{x^n}\div x-1=s$. Here $a=80{,}2425\,l.$ $x=1{,}05$; $n=10$ Years; whence s the Sum to be paid down for 10 Years longer Continuance $=619{,}62\,l.$ W. W. R.

$$\text{If } x=\left\{\begin{matrix}\pounds.\\1{,}06\\1{,}07\\1{,}08\\1{,}5\end{matrix}\right\}a=\left\{\begin{matrix}\pounds.\\87{,}128\\94{,}366\\101{,}83\\500{,}134\end{matrix}\right\}s=\left\{\begin{matrix}\pounds.\\672{,}78\\728{,}68\\780{,}32\\3861{,}92\end{matrix}\right\}\text{reſpectively.}$$

XI. QUESTION 125, *anſwered by Mr.* R. R. H.



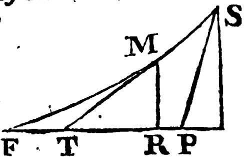
LET $AB=CD=n$, $AC=BD=a$, $AE=QT=y$. $AT=z$, $ET=x$, and $v=$ the Space the *Boat* rows in the Direction of the Current: Alſo $w=$ the abſolute Space rowed by the *Boat*. Then will, $Tp=\dot{y}$, $pr=\dot{v}$; $\dot{y}^2+\dot{v}^2=\dot{w}^2$, and $\dot{v}+r\dot{w}=\dot{x}$, and by *Sim.* Δs $\dot{y}:\dot{v}::a-y:\frac{\dot{v}}{\dot{y}}\times\overline{a-y}=n-x$.

The above, in Fluxions, is $\dot{x}-\dot{v}=r\dot{w}=\frac{\dot{v}\ddot{y}}{\dot{y}^2}\times\overline{a-y}$. Hence (putting $g=\frac{n+\sqrt{a^2+n^2}}{a}$, and $y=a-y$) we have $2v=$ $\frac{ga}{1+r}-\frac{ag^{-1}}{1-r}+\frac{a^r\,y^{1-r}}{g^{1-r}}-\frac{gy^{1+n}}{a^r\times\overline{1+r}}$. Hence $x=ga-\frac{a}{g}+\frac{gy^{1+r}}{a^r}-a^r\,\frac{y^{1-r}}{g}$. And w, at the Point D, becomes $\frac{ga}{1+r}+\frac{g^{-1}\times a}{1-r}=m$, the *abſolute Diſtance* rowed by the Boat $=$ No.

Hence $r=\frac{-n}{2m}\pm\frac{\sqrt{4m^2+n^2-4m\sqrt{n^2+a^2}}}{2m}=$ No.

The

The ſame anſwered by Mr. Rubes.



PUT a=LS=¼ Mile; b=FL $=\frac{1}{4}\sqrt{15}$, n= PL, an invariable Quantity to be determined, s=4 Miles, the Velocity of the *Boat* per Hour; t = Velocity of the *Tide*. Then the Velocities of Boat and Tide will be as 1 to $\frac{t}{s}=r$, per Hour; x=FR, y=RM, z=FM: Then will FT $=rz$, and TR$=x-rz$: But TR $=\frac{y\dot{x}}{\dot{y}}$; whence $x-rz=\frac{y\dot{x}}{\dot{y}}$, or $x-\frac{y\dot{x}}{\dot{y}}=rz$: Put into Fluxions, (making $\dot{y}$ conſtant) $-\frac{y\ddot{x}}{\dot{y}}=r\sqrt{\dot{x}^2+\dot{y}^2}$; ∴ $-\frac{r\dot{y}}{y}=\frac{\ddot{x}}{\sqrt{\dot{x}^2+\dot{y}^2}}$, or reduce it to a more eaſy Form, clear $\frac{\ddot{x}}{\sqrt{\dot{x}^2+\dot{y}^2}}$ of Second Fluxions, according to *Maclaurin's* Method. Aſſume $\dot{x}=s\dot{y}$; then in Fluxions, (making $\dot{y}$ conſtant) $\frac{s\ddot{x}-\dot{s}\dot{x}}{ss}=0$; and $\ddot{x}=\frac{\dot{s}\dot{x}}{s}=\dot{s}\dot{y}$, by Subſtitution. Whence $\frac{\ddot{x}}{\sqrt{\dot{x}^2+\dot{y}^2}}=\frac{\dot{s}}{\sqrt{1+s^2}}$, and $-\frac{r\dot{y}}{y}=\frac{\dot{s}}{\sqrt{1+s^2}}$, whoſe Fluent is $-r\times$ Hyp. L. $y=$ Hyp. L. $s+\sqrt{1+v^2}$. Now, when $x=b$, $y=a$, $\frac{y\dot{x}}{\dot{y}}$ will become $\frac{a\dot{x}}{\dot{y}}=n$, and $as=n$, by Subſtitution; and the *corrected Fluent* will be $r\times$ Hyp. L. $a-r\times$ Hyp. L. $y=$ Hyp. L. $s+\sqrt{1+s^2}-$ Hyp. L. $\frac{n+\sqrt{a^2+n^2}}{a}$ $(=g)$. Then the Equation will become $r\times$ Hyp. L. $\frac{a}{y}=$ Hyp. L. $\frac{s+\sqrt{1+s^2}}{g}$, or $\frac{a^r}{y^r}=\frac{s+\sqrt{1+s^2}}{g}$. Whence $2\dot{x}=\frac{ga^r\dot{y}}{y^r}-\frac{y^r\dot{y}}{ga^r}$

whoſe Fluent is $2x = \frac{ga^r y^{1-r}}{1-r} - \frac{y^{1+r}}{ga^r \times \overline{1+r}}$, the Equation of the *Curve FMS deſcribed by the Boat.*

Laſtly, To find the Velocity of the *Tide?* By Queſt. $t = 5 \times \overline{b-n}$, and $r = \frac{5}{s} \times \overline{b-x}$, by Subſtitution. But, when $x = b$, then will $y = a$, and the Equation of the Curve becomes $b = \frac{ga}{2 \times \overline{1-r}} - \frac{a}{2g \times \overline{1+r}} = \frac{n + r\sqrt{\overline{n^2 + a^2}}}{1-r^2}$, by Reſtitution and Reduction: from whence $n = 3697555$, and $t = 5 \times \overline{b-n} = 2.9924525$ *Miles,* the required hourly Velocity of the Tide. Q E. I.

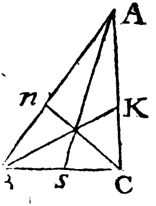
Scholium. From the foregoing *Equation of the Curve,* it will be eaſy to find the Equation of that Curve, when $LR = x$, and the reſt as before: For when $x = b$, then will $y = a$, and the Equation of the Curve will become $b = \frac{ga}{2 \times \overline{1-r}} - \frac{a}{2g \times \overline{1+r}}$

Then will $FL - FR = LB = \frac{ga}{2 \times \overline{1-r}} - \frac{a}{2g \times \overline{1+r}} - \frac{ga^r y^{1-r}}{2 \times \overline{1-r}} + \frac{y^{1-r}}{2ga^r \times \overline{1+r}}$: Whence $2x = \frac{ga}{1-r} - \frac{a}{g \times \overline{1+r}} - \frac{ga^r y^{1-r}}{1-r} + \frac{y^{1+r}}{ga^r \times \overline{1+r}}$, Equation Curve FMS, deſcribed by the Boat, *in this Caſe*; and is the ſame Equation as *That* by the ingenious Mr. R. R. H. from a different Method, in *Ladies Philoſopher,* Number 2.

XII. QUESTION 126, *anſwered by the* Author *of the* Palladium.

Put $x = AB$, $y = AC$, $z = BC$; $b = As = 50$, $c = Bk = 40$, $d = Cn = 30$.

As $BA + AC : BC ::$ $BA : Bs = \frac{xy}{x+y}$ (*See Fig.* anned) :: $CA : Cs = \frac{z}{x+y}$. $BA \times AC - Bs \times sC = \overline{As}^2$, by a known Theom.



Therefore,

Therefore, $xy - \frac{xyzz}{\overline{x+y}\,\vert^2} = bb$	For x, y, z, put	$a^2e - \frac{a^4euu}{a^2 \times \overline{1+e}\,\vert^2} = bb.$
$xz - \frac{xzyy}{\overline{x+z}\,\vert^2} = cc$	a, ae, au, reſpectively,	$a^2u - \frac{a^4uee}{a^2 \times \overline{1+u}\,\vert^2} = cc.$
$yz - \frac{yzxx}{\overline{y+z}\,\vert^2} = dd$	and we have	$a^2ue - \frac{a^4ue}{a^2 \times \overline{u+e}\,\vert^2} = dd.$

$$\text{Whence, } a^2 = \frac{bb}{e - \frac{euu}{\overline{1+e}\,|^2}} = \frac{cc}{u - \frac{uee}{\overline{1+u}\,|^2}} = \frac{dd}{ue - \frac{ue}{\overline{u+e}\,|^2}}.$$

Now, by the laſt Equations and Method of *Trial* and *Error*, or *(beſt)* by *infinite Series*, $e = ,815897$; $u = ,618886$, $aa = 3466,94$. Whence, $x = 58,8807$, $y = 48,039$, $z = 36,439$, the Sides required.

We received neither Numbers nor Method of Solution to the above Queſtion from any of our Correſpondents, except from *Cheſterfieldienſis* the Propoſer. He put b, c, and d for the ſame biſecting Lines as we did, *viz.* 50, 40, and 30, $t =$ Nat. Tan. $\frac{1}{2}\angle$ A, and $z =$ Nat. Tan. $\frac{1}{2}\angle$ B, *(ſee Fig. above)* and proceeded through the Proportions of natural *Sines*, *Coſines*, and Secants combined, with the Sides and their Segments, till he arrived at theſe two* *final* Equations.

$$^{*}\frac{\overline{2t - zt^2 + z}\,|^2 \times \overline{z + zt^2}}{\overline{2t - 2tz^2 + 2z - 2zt^2}\,|^2 \times t} - \frac{\overline{2z - tz^2 + t}\,|^2 \times \overline{t + tz^2}}{\overline{2t + 2tz^2 + 2z + 2zt^2}\,|^2 \times z} \times \frac{b^2}{c^2} = \frac{d^2}{c^2}.$$

And $\frac{z\sqrt{\overline{1+t^2}} \times \overline{z - zt^2 + 2t}}{t\sqrt{\overline{1+z^2}} \times \overline{t - tz^2 + 2z}} = \frac{b}{c}$: From whence he determines the Value of t and z (by the Method of *Trial* and *Error)* $= ,34628$ and $,51614$, nearly, the $\angle$C $= 87^\circ\ 14'$ fere, and Sides very nearly in the ſame Numbers as we have done above.

He obſerves that the biſecting Lines c and b are to one another *reciprocally* as $\frac{t - tz^2 + 2z}{z\sqrt{\overline{1+t^2}}}$ and $\frac{z - zt^2 + 2t}{t\sqrt{\overline{1+z^2}}}$, and that when z and t are known all the $\angle$s will be known; and therefore the 3d biſecting Line d (he ſays) ſeems *ſuperfluous.* — *On which we obſerve there are but three unknown Quantities, to which there muſt be three independent Equations; and in order to find* z *and* t, *the known Quantity* d *muſt be included with thoſe of* b *and* c. He has determined the *Sides* of the ſame $\triangle$, from two biſecting Lines of the $\angle$'s A and B, and $\angle$ C given, by a *final Equation* of the 14th *Power*, including 73 Terms.

The foregoing Kind of Queſtion we propoſed in the Year 1737 in the *Norwich-Mercury*, but was never, that we ſaw, *analytically* reſolved before theſe Solutions given: being one of thoſe Kind of Solutions, which Sir *Iſaac Newton* call'd *cracking a Pebble*; or what others term ſeeking a Pin amidſt a Load of Hay. Though the ſame may be alledged of all Kinds of Science, that tends not directly to private or public Utility; except ſo far as *Amuſement* or *Curioſity* have their Uſe, and find Advocates. For ſince all Things are but uſeful in their Degree, we may obſerve many *phyſical* or *fluxional Problems* of as little real Uſe as theſe Queſtions, or as *exponential Equations* are, *ſerving chiefly for the Mind's Exerciſe.*

XIII. QUESTION 127, *anſwered by the Propoſer*, Cheſterfieldienſis.

$9a+9c^2=11b^2$, or $sa+sc^2=rb^2$ and $a^2=b^2+c^2$. E. 47.1. And $a^2-c^2=b^2$. Then, As $a+c^2 : a^2-c^2 :: r : s$.

Hence, $sa+sc^2=ra^2-rc^2$, and $ra^2-sa=\overline{s+r}\times c^2$; and $a^2-\frac{s}{r}a=\frac{s+r}{r}$, hence $a=\sqrt{\frac{s^2}{4r^2}+\frac{s+r}{r}c^2}+\frac{s}{2r}$.

Now when a is a complete Number $\sqrt{\frac{s^2}{4r^2}+\frac{r+s}{r}c^2}$ muſt be ſo too. But, if you put $\frac{s^2}{4r^2}=m^2$, and $\frac{s+r}{r}=d$, then $\sqrt{dc^2+m^2}=$ a Square, whoſe Side let be z; then $\sqrt{dc^2+m^2}=z$, and $dc^2+m^2=z^2$.

But there are infinite Squares (c^2) *which being multiplied by* d, *a given Quantity, adding thereto a given Square* (m^2) *ſhall make a Square, I have proved.* Therefore, if an univerſal Theorem be from thence deduced, it will be $\frac{2vm}{d \backsim v^2}=c$, a *compleat* Number.

If therefore $v^2=1$, then $c=1$, and $a=\frac{40}{22}=\frac{20}{11}=1\frac{9}{11}$ and $b=\frac{\sqrt{179}}{11}$. If $v^2=4$, then $c=\frac{3}{4}$; and $a=\frac{3}{2}=1\frac{1}{2}$, and $b=\frac{\sqrt{27}}{4}$, &c.

For, as $\frac{20}{11}+1 : \frac{400}{121}-1 :: 11 : 9$, and

$\frac{3}{2}+\frac{9}{16} : \frac{9}{4}-\frac{9}{16} :: 11 : 9$. Q. E. I.

Cor. If the Proportion was as $a^2+e : b^2 :: r : s$, then a and c might be found after the ſame Method.

XIV.

XIV. QUESTION 128, *anſwered by Mr.* Alexander Rowe.

PUT $p=4000\,l.$ $r=1{,}04\,l.$ Then (per *Theorems* in *Jones's Synopſis Palmariorum*, p. 207) $pr-p=v=160\,l.$ the annual Rent. Again, putting $r=1{,}05\,l.$ we have $\frac{v}{r-1}=p=3200\,l.$ the Worth of the Eſtate in ready Money, at 5*l. per Cent.* which anſwers to 20 Years Purchaſe. W. W. R.

Corol. In buying Freehold Eſtates, the Purchaſers being allowed four *per Cent. &c.* compound Intereſt for Diſcount, will give 25 Years Purchaſe or Value; but being allowed 5 *per Cent.* will give 20 Years Value, or Purchaſe, only.

Cheſterfieldienſis ſolved this Queſtion in the ſame Manner and Numbers; *who, he ſays, is about publiſhing, by Subſcription, the* Complete Accomptant, *containing the Solution of* 18 *Queſtions in* Company Accounts, (*according to a* New Method) *of all the Caſes that can happen, in* Italian *and* common Book-keeping: *being an* Improvement *on all Books of the* Subject.

XV. QUESTION 129, *anſwered* (in the latter Part) *by Mr.* Allen.

PUT v, u, w, x, y and z for the *alphabetical* Values of the Letters in the *illuſtrious Perſon's* Name.

$$\text{Then}\left\{\begin{array}{l} v+u+w+x=58 \\ u+w+x+y=59 \\ w+x+y+z=67 \\ x+y+z+w=59 \\ y+z+v+u=45 \\ z+v+u+w=52 \end{array}\right\}$$

$$\text{Sum}=4v+4u+4w+4x+4y+4z=340.$$

$\frac{1}{4}$ Sum $=v+u+w+x+y+z=85$; from whence ſubtracting each of the former Equations, and we have

$v+u=18$	$y+z=27$	Aſſume the Value of
$u+w=26$	$z+v=26$	v, till it comes right
$w+x=40$		$=13$,
$x+y=33$		

When $u=5$, $w=21$, $x=19$, $y=14$, and $z=13$; anſwering to NEWTON.

Southwark, May 4. 1757.

⁂ *Among all our mathematical Correſpondents not one has attempted to give a Solution to the former Part of this Queſtion* (being ſome Trouble to perform) *which therefore muſt remain unſolved till next Year, and ſomebody undertakes it; we having other Engagements at preſent. The* Number of Combinations *of* 4 *Places of Letters in* *the* 24 *is eaſily determined; but to determine thence the Sums of all the* Roots, Squares, *and* Cubes *of thoſe Letters Places differently combined, and then the* Differences of thoſe Sums, *reſpectively, is a* Herculean Labour *we recommend to others, rather than, at preſent, undertake ourſelves: Though it ſeems not* impracticable *any more than to find the Number of all the* Words ſignificant *and* inſignificant *that can be made out of the* 24 Letters, *which we find to be* $1391724288887252999425128493402200 = n^n - 1, + \overline{n^n - 1} \div \overline{n - 1}$, (where n, the Number of Terms $= 24$.) *For if* N *be 1ſt Term,* $=$ *Ratio, then,* $N^n - 1 + \frac{N^n - 1}{N - 1}$ $=$ *the Sum of the geometric Progreſſion of the ſeveral Diſpoſitions or Compoſitions of Quantities taking them one and one, two and two,* &c. *to* N *Quantities;* N^n *being the Compoſition of* n *Quantitities in* N, *taking each Time* n *of thoſe Quantities,* diſtinctly.

For Combinations *of* N *Quantities taken by* n *Number at a Time, and* Elections *or Sums of thoſe ſeveral Combinations* (Permutations *having Nothing to do in the preſent Solution) See* Jones's Synopſis Palmariorum, *Pages* 214, 215. See alſo Pages 161, &c. *to find the Sums of Powers of Arithmetic Progreſſions, and Sums of continued Arithmetic Proportions or* combinatory *Numbers.*

PRIZE-QUESTION *anſwered by Mr.* James Carter, *of* Clanfield, *near* Bampton, Oxfordſhire.

IN the PERIOD of 223 *Synodical Months,* or 18 *Years,* 11 *Days,* 7 *Hours,* 43 *Minutes* and 20 *Seconds,* the MOON is found to perform her ſeveral *Inequalities,* both in *Longitude* and *Latitude:* Her Orbit, after which Time, having *nearly* the ſame *Poſition* with the *Sun,* as at firſt; and the *Errors* in the Moon's Motion, produced by his Action, nearly recurring of the ſame Magnitude.

Hence, *If to the Moon's true Longitude (at any Time) there be added* 10° 48′ 10″ *her mean Motion in the ſaid* Period. *it will give her* Longitude *at the Completion thereof;* ſeldom differing above $\frac{1}{3}$ Deg. from the *Truth;* which may be correctly obtained by the 3 following *Equation Tables,* thus conſtructed.

1. By *Tables,* in laſt Year's *Palladium,* the Increaſe of the Sun's mean Anomaly, in the abovementioned *Period,* is $= 10° \frac{1}{2}$ *nearly;* correſpondent to which *Increaſe,* let the Differences of the Moon's *annual Equation* be taken to every 5° of *mean Anomaly* of the Orbit, and prefixed to the ſeveral Days of the Months, to which the ſaid Anomalies reſpectively belong, with their proper Signs, as in 1 *Equation Table.*

2. By the *ſaid Tables,* the *Decreaſe* of the Moon's mean Anomaly, in the above *Period,* is $= 2° 51' 24''$; correſpondent to which *Decreaſe,* let the Differences of the Moon's mean *elliptic Equation* be taken for every Day's Motion of Anomaly from *Apogeon* and *Perigeon,* which, with their proper Signs, make 2. *Equation Table.*

3.

3. With the above *Diff.* of the Moon's Anomaly (= mean Motion of her *Apogee)* and each Day's mean Diff. of the *Arg. of Evection-Tab.* (nearly = 11° ⅛) let the Differences of the ſaid *Equation* be taken, which, with their proper Signs, *make* 3. *Equation Table.*

4. The *Errors* in the Moon's *Longitude*, occaſioned by the Diff. of her *Variation* and *Reduction*, and other ſmall Equations of her *Orbit*, may be ſafely neglected, as they will ſcarce ever amount to *Half a Minute.* And the Moon's *Lat.* may be, *generally*, taken the *ſame*, after a *Period* has elapſed, without ſenſible Error.

Rules of Calculation.

1. *Find, by an* Ephemeris, *the Moon's true Long. and Lat. her* Age, *and* Diſt. *fr.* Apogeon, *or* Perigeon, *in Day's Motion*; *alſo let her Age be noted when in* Apogeon, *or* Perigeon, *always taking that which lies neareſt to* 18 *Y.* 11 *D.* 7 *H.* 43 *M.* 20 *S. preceding the given Time, for which her Longitude is required.*

Note, *that whenever the* above Period *contains* 5 Leap-years *it will be compleated in* 18 *Y.* 10 *D.* 7 *H.* 43 *M.* 20 *S. and obſerve to allow for the* 11 *Days by the Alteration of* Style, *till* October 1770, *&c.*

2. *To the ſaid Long. of the Moon, add her* mean *Motion in the above Period* = 10° 48′ 10″; *and correct the* Sum *by the Equation in* Tab. 1. *anſwering to the Day of the Month New Stile.*

3. *Let the Moon's Longitude be further corrected by* 2. Equation Tab, *anſwering to her Diſt. from Apogeon or Perigeon.*

4. *To the Days of the Moon's Age, let her Age be added when in* Apogeon *or* Perigeon, *neareſt the given Time, adding* 15 *Days, if taken in* Perigeon, *and for every* 11 *in the Sum, add* 1; *the Sum, ſubtracting* 32, *if need be, is the* Argument of Tab. 3.

Then let the Moon's Long. be corrected by the Equat. in Tab. 3, *anſwering to this Arg. and it will give her* true Longitude *to the* Time required.

1. EQUATION TABLE, ☽. For the Period of 223 LUNATIONS.

Ar. D. M.	Jan.		Feb.		Mar.		Apr.		May.		June		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	−		−		−		+		+		+		+		+		+		−		−		−	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″
1	2	8	1	41	0	51	0	15	1	15	1	54	2	2	1	42	0	53	0	9	1	15	1	57
6	2	6	1	33	0	41	0	26	1	22	1	58	2	0	1	34	0	43	0	20	1	24	2	2
11	2	3	1	24	0	30	0	37	1	29	2	0	1	59	1	28	0	32	0	31	1	33	2	5
16	2	0	1	15	0	19	0	47	1	36	2	1	1	56	1	20	0	22	0	42	1	41	2	7
21	1	54	1	6	0	8	0	56	1	45	2	2	1	52	1	11	0	11	0	52	1	47	2	8
26	1	48	0	57	+	3	1	6	1	51	2	3	1	48	1	2	0	0	1	2	1	53	2	8

2. EQUATION TABLE, ☽.

Arg. Days fr. Apog. or Perig.	Apog.		Perig.	
	+		−	
	′	″	′	″
0	17	39	20	14
1	17	22	19	45
2	16	22	18	1
3	14	36	15	14
4	12	9	11	37
5	9	6	7	23
6	5	19	3	4
7	1	16	+1	16

3. EQUATION TABLE, ☽.

Days Arg.		−		Days Arg.		+	
		′	″			′	″
0	32	5	37	16		4	5
1	31	3	52	17	15	4	2
2	30	3	38	18	14	4	48
3	29	3	15	19	13	3	30
4	28	2	47	20	12	2	57
5	27	2	12	21	11	2	19
6	26	1	28	22	10	1	38
7	25	0	44	23	9	0	53
8	24	0	0	24	8	0	0

EXAMPLE. *To find the Moon's true Place on Sept.* 18, 1758, *at Noon?*

From the given Time 1758 *Yr.* 18 *Sept.* | at Noon.
Subtract the Period . . 18 . . 11 | 7h 43m 20s.

Rem. 7h 43m 20s before Noon . . } 1740 . . 7 *Sept.* N. S. . . . . 27 *Aug.* O. S.

Moon's Age 16 Days.
Age in Perih. 14
+ 15
45
$+\frac{1}{11}$ . . 4
Sum 49
— 32
Rem. 17 Days.
Arg. 3d Equat.

N. B. *If the Moon's Places in an* Ephemeris *are computed to apparent Time, they muſt be reduced to mean Time, or it will ſometimes occaſion an* Error *in* Long. *amounting to 2 or 3 Minutes.*

	1740.	☽ Long.	☽ Lat. S.
By *Ephemeris* Moon's Places at Noon	*Sep.* 6.	♓ 21° 9′	4° 43′
	7.	♈ 6 18	5 1
Moon's diurnal Motion . .		15 9	
Hence ☽ Pl. at 7h 43m 20s bef. N.	*Sep.* 7.	♈ 1° 25′ 32″	4 56 S.
\+ M. Mot. *Period* . .		10 48 10	
Sum		♈ 12 13 42	
1. Equation for Month-day . .		\+ 0 45	
2. Eq. for Diſt. fr. Perig. by *Ephem.* 2 Days		—18 1	
3. Equation anſwering to Argument		\+ 4 2	
Moon's true Pl. on the mean Noon of *Sept.* 18, 1758, req.	Sum	♈ 12 0 28	4° 56′ South Lat.

In like Manner if her Longitude be required to apparent Time, it may be performed by Addition or Subtraction of an Arc, correſpondent to the Equation of Time.

N. B. *Mr.* Carter *worthily claims the* 12 Prize Palladiums, *having no Competitor.*

PARADOX II. *By* Amicus.

ROGER can ſee the *Habitation* of his Miſtreſs, lying directly South from his own Houſe, which is about 2 Miles off. But though there is no *Impediment* in the direct Road his *neareſt* Way is to go a Mile S. by *Eaſt*, and a Mile S. by *Weſt*.

N. B. *This* Paradox *was forgot in the proper Place.*

EMENDATIONS *of the* PALLADIUM 1757.

P. 21. l. 20. r. 51° 45′ 28″ 40‴. l. 24. r. ∠TLH. P. 30. l. 11. r. the 1ſt June. And P. 34. l. laſt, at the End, take in 2a7n7a. Let $2a-b=n$, then $6a-17b=24$. Here P. 43. l. 5. fr. Bot. r. as in Queſtion the 409, and $d=5$. L. laſt, r. *whence.*

whence. L. 44. p. 18 fr. Bot. r. $\frac{pc-bx}{2a}$. P. 45, Step 13, in Marg. r. 4 + 12 and $\div \overline{s}$. P. 46. l. 5. r. $s = \frac{s}{1-v}$. P. 47. l. 11, from Bottom, r. $\overline{pr^2-r-2} \times r$. P. 61. l. 19. r. 11′ 59″ ☽ An. ag^t 43h.

*** P. 36. l. 28. for 161° 50′ 42″ An. fr. Perih. r. 162° 50′ 42″, diſcovered by *Cheſterfieldienſis*. [P. 55. l. 35. r. 0° 55′ 0″ ag^t 0s 29° Arg^t.

Correction of the Anſwer to the 5th Queſtion in Palladium, 1757, *by* Cheſterfieldienſis.

THERE being no Dif. in falling of Moidores and Guineas (as to Heads or Tails) $2^4 = 16$ all the Chances that B has to happen or fail, and $\overline{2}|^5 = 32$ all the Chances that A has to happen or fail. Whence A has 2 to 1 the better of it before they begin to play.

See Solution before } A's } Chance is worth } 7l 2s 0d
at Beginning } B's } 3 11 0

N. B. Mr. *Lomax* gives an Anſwer to the former Part of this Queſt. only.

Correction of Mr. Smith's *Anſwer to the 8th Queſtion Palladium*, 1757, *by* Cheſterfieldienſis.

LENGTH of longeſt Day = 18h. then allowing 1° 8′ for Refraction, the Aſc. Dif. will be $\frac{88° \; 52'}{2} = 44° \; 26'$ the T. the Sun riſ. or ſets bef. or aft. 6. Then as T. 23° 29′ Rad. :: S. 44° 26′. T. 58° 10′ 35″, Lat. required. *To find when the Day is 16 Hours long there?* The A. Dif. is $\frac{58° \; 2'}{2} = 29° \; 26'$; Say as T. 58° 10′ 35″ : Rad. :: S. 29° 26′ : T. 16° 57′ 36″, which in 1755 anſwers to *May* 7, or *Auguſt* 6, nearly. — But if 18 Hours are taken for apparent T. then as T. 23° 29′ : Rad. :: S. 45° : T. 58° 25′ 26″ Latitude. — Again, for 16 Hours long, As T. 58° 25′ 26″ Rad. :: S. 30° : Tan. 17° 4′ 39″, the Dec. N anſwering to the 7th or 8th of *May*.

REMARKS *on the* QUERE-ANSWERS *in* Ladies Diary, 1757.

By Argus Βριαρέως, *Corrector-General.*

HAPPINESS is placed in Virtue and not in Knowledge or Ignorance; Happy Stations of Life being ſuited to all *Underſtandings*.

> *The* Wiſe *are happy Nature to explore,*
> *The* Fool *is happy that he knows no more:*
> *Know then this* TRUTH, *enough for* Man *to know,*
> VIRTUE, alone, is HAPPINESS below. POPE's Ethics.

Quere, Why then was *Ignorance* preferred to *Knowledge*, or a *bad* Anſwer to a *better?*

2. The *Author* did not explain why he was reputed to wear thoſe *Honours* he ſpeaks of.

3. *Honeſty*, here defined by *Equity*, *ſimply* and abſtractedly conſidered, excludes all different Modes or Degrees of Honeſty, as a *complex Idea*, or mixed Mode, by that *ſimple* or abſtracted Conſideration. So in the abſtracted Conſideration of *geometrical* Quantity there is no aſſignable Difference between any *given* Quantity and the next *leſs* or *greater*; and *determinate* Honeſty and *given* geometrical Quantity are conſidered to be neither *more or leſs than what they are*. But this Account is not the *Idea* of the *Practice of Honeſty*, or of

Geometry, wherein are ſeveral Degrees or mixed Conſiderations of Honeſty as well as of Quantity, Thus, a Man is *more or leſs honeſt*, when he demands a juſt Debt of a Perſon able to pay him, and has a Power or Right (by Law or Equity) to demand more or leſs; being according to the different *Practice of Honeſty* (not the ſpeculative *Theory* of it) among Men of Dealings. If any deny it, *at what exact Prices (neither more or leſs) muſt all Kinds of Labour, Services, Commodities, or Art be fixed?* or, *What are the Limits of Honeſty where the Practice of it begins and ends?* (And *what* Degree *of Honeſty was that when the preſent* Compiler *of the* Ladies Diary *ſeized the Copy from the* Widow, Proprietor, *for a* worſhipful Company, *to* entail *the Property on himſelf, and not on* her Friends?) A Man may demand or do honeſtly, *more* or *leſs*, according to the Condition or Circumſtance of the Perſon who is to pay him, or with whom he has to do. Hence *honeſtus, honeſtior, & honeſtiſſimus; juſtus, juſtior, juſtiſſimus, &c.* are proved to be good *Latin*, and ſaved from Baniſhment, by a practical and mixed Conſideration of *Benevolence, Kindneſs, &c.* in Honeſty and Juſtice. So able a *Critic* as Mr. *Johnſon* aſſures us of the different Readings of Words (ſtampt by Cuſtom) *Faith, Honour, Glory, Religion, Truth, &c.* and why not different Conſiderations, or Degrees of theſe and their Circumſtances? (*See his Dictionary, and Locke on mixed Modes, Complex Ideas, Degrees of Certainty, Probability, Evidence, Aſſent, Error, &c*) And it will appear that all Things in the World, and their Qualities, Modes, Attributes, &c. are comparative in *Idea*, or refer to ſome Meaſure; except the *Supreme Being* and *his Attributes*, admitting of no Compariſon; whoſe infinite Exiſtence, Properties and Perfections, can refer to Nothing but *himſelf* for Meaſure.

ANSWERS *to the* Ladies Diary QUERIES *for* 1757, *by* Monoculus.

1. *WHY Men more than Women marry for Beauty? Anſ.* to pleaſe themſelves; as Women do, when they can.

2. *Why Beaſts ſwim more naturally than Men? Anſ.* Becauſe the four oar'd Legs of Beaſts are better placed than Mens Legs and Arms are for rowing them: A *large Beaſt*, in the Water, being like a *four oar'd Barge*; but a *Diary Author*, like a *Dutch Boat* of two Oars, with a Couple of *Logs* towing a-ſtern.

3. *Why a Raſor cuts Nails, or a Throat, better after heated in Water than cold? Anſ.* Becauſe *(if it does ſo)* the Metal of the Raſor is ſoftened by Heat and hardened by Cold. *Quere, Whether 'tis better to oil a Man's Wig with Honey or Muſtard?*

4. *Whether a Man full of Hopes and Expectations, or another, who is paſt all Hopes, is the happier of the two? Anſ. Hopeful* is happier than *Graceleſs*.

For *Rebuſes* and *witty Birds* you muſt excuſe me. *Gibbons*'s Clock too faſt.

Mr. Emerſon's *2d Edition of his* Fluxions *is lately very much enlarged and improved by the Author, ſo as to excell every other Book of the Kind and Price. Printed and ſold by Mr.* Richardſon *in* Pater-noſter Row, London.—*Yet we find this* inimitable *Work of demonſtrative Science (like the* Newtonian Principia) *has been cavilled at (not criticiſed) in a monthly Production, called the* Critical Review, *by a* mathematical Labourer *(who is allowed to be no Judge of the Subject) as being* defective; *while every Page of this* curious *Performance is a Proof (to all Judges of the Subject) of its* tranſcendent *Worth and Excellence! See* Dodſon's *Tables and* Landen's *Labours.*

N. B. *Mr.* Emerſon's Fluxions *is proper for all mathematical Schools in his* MAJESTY'S DOMINIONS, *and for the Inſtruction and Improvement of the mathematical School of* Chriſt-church Hoſpital, London, *and Mr.* Deputy Profeſſor's *Artillery-School, at* Woolwich, *in particular.*

N. B. Mr. *Fr. Holliday*, of the free Grammar-School, at *Haughton Park*, ar *Retford, Nottingham*, has publiſhed an uſeful Tract of *Practical Gunnery, the Art of Engineering*, with the Rudiments of *Arithmetic, Menſuration,* *Trigonometry*, and *Geometry*; the Method of computing the Strength of *Timber*, with other uſeful Things preparatory to the *Fortification* and *Gunnery* therein taught—proper for *Schools*—and particularly uſeful for the Artillery School of *Woolwich*, and mathematical School of *Chriſt-church Hoſpital*.— Sold by Mr. *Richardſon* in *Pater-noſter Row*.

FOR the BENEFIT of all who chooſe to be SUBSCRIBERS or PURCHASERS, *There is now printing off, and great Part finiſhed by the Printer, a Work*, (at Half a Guinea in Sheets) entitled, *Aſtronomia Accurata*, or the *Royal Aſtronomer and Navigator*: Determining the *Longitude at Sea* and *Land*, from the *Royal Obſervatory* at *Greenwich*; by a SET of *correct Solar and Lunar Tables*; founded on the *Newtonian Theory of Gravity*, and compleated by a *Courſe* of accurate Obſervations, with *Precepts and Examples* of the Conſtruction and general Uſe of theſe *Tables* (contrived for the Eaſe and Speed of Computation) either according to *Old or New Stile*.

AN EXPLANATION of the *Lunar Theory*; the *Doctrine of Eclipſes*; Elements of *Planets*, *Satellites*, and *Comets*, with Tables for computing their Places. An *univerſal Diary*, &c. To which is added, the SECOND PART, or Tabular Navigation: Being the Art of conducting a Ship to any Part of the known World, by Means of (*Four Pages of Figures*) the SEAMAN's COMPUTER. By which, *trigonometrical Queſtions* may be readily anſwered, and an *exact Account* kept of a *Ship's Way* by Addition only of a *few Figures* taken out of the ſaid *Tables*, without the Uſe of Sines, Tangents, and Logarithms. (*Cave Review!*) By *Robert Heath*, encouraged and aſſiſted by a PERSON of HONOUR, *eminently* ſkilled in Aſtronomy.

N.B. Thoſe Gentlemen, who chooſe to be Subſcribers, may pay their Money to Mr. *Kippax*, in *Cullum-Street*, *Fenchurch-Street*, *London*, Half a Guinea for each Book in Sheets ſubſcribed for, taking his Receipt.

REMARKS on the late *Biſhop* of CLOYNE's PRINCIPLES of *Human Knowledge*: Or, An INQUISITION into *Sophiſtry* and *Error*.

See a Treatiſe, intitled, the Principles of human Knowledge, by George Berkley, *A. M. publiſhed* 1713.

THIS EMINENT AUTHOR, in this Treatiſe, imputes the *Errors* and *Difficulties* of Science, to the Cauſe of Men having *wrong Notions of material Subſtance, and of Abſtract Ideas as the Grounds of Scepticiſm, Atheiſm*, and *Irreligion*: Who affirms, "*there is no Matter, no Diſtance, no Abſtract Ideas,*
"*and nothing but Spirit, and his uncommon Ideas in the World.*"

Hence follows a *Tranſubſtantiation* of all Things into *Spirit* and *Ideas*, by implicit Faith, ſuppoſed for God's Glory, and the Good of Religion. That, if a Church and Steeple ſhould fall, (*as once happened at* Bawdſwell *in* Norfolk) being *no Matter*, would do no Harm, ſhould the Preacher and People happen to be aſſembled there at that Time. *Velocity* and *no Matter* will produce *no Force*. And fighting Battles will not be deſtructive to *ſpiritual Subſtances*; becauſe, if they are wounded, or cut in two, their Subſtances will reunite, like *Milton's heavenly Militia*. And Maſſacres and Murders will be happily terminated by *Faith in no Matter*.

The ſame *Divine Author* aſſuring us, that there is now *no Diſtance* of Things, in Conſequence whereof there will be no need of keeping the *French at a Diſtance*, as they are already with us. That, in ſuppoſing otherwiſe (as we have been uſed to ſuppoſe) *we deceive ourſelves, and the Truth is not in us.* Whence it will follow, according to the ſame Author, that our *immaterial Armaments, Squadrons and Expeditions are needleſs* to keep our Enemies *at a Diſtance*; as there is now no ſuch Thing as Diſtance betwixt us. Our Author, to prove there is no *Matter* (whatever was the *Matter* with him, when he undertook it) refers us to the Idea of *Surface* (the Mode or Accident implying *Matter*) which *Surface* being continually removed for the next

Surface to appear, and ſo on, (as our *immaterial Author* propoſes) he aſks what do we ſee but *Surface, or external Idea?* (implying *interior Matter*) to which *Matter*, we know, *That Exiſtence of all Things depend upon the Perception of thoſe Things by ſome Being; as Self-Exiſtence depends upon Self-Conſciouſneſs of that Exiſtence; ſo that the Perception of Matter, or of a ſolid extended Subſtance, by Sight or Touch, proves the Reality of its Exiſtence*, againſt our *immaterial Author*'s Poſition. And a Man, with as much Conſiſtency, may deny the Reality of his *own Exiſtence*, or of his *Self-Conſciouſneſs* of it, as to deny the ſelf-evident *Exiſtence of Matter* to his conſcious Perception.

Tho' the Diſtinctions between *Matter* and *Intellect* are too nice and ſubtle for us to *mark out* the End of one, and Beginning of other, in the Compoſition of the human *Species*, yet both *thoſe Subſtances* exiſt, not the leſs certain, and diſtinctly. To deny it would be in Effect to deny that *we live*, becauſe we cannot comprehend our *Original Principles*, on which our living depends, or to deny there is a World, becauſe we cannot comprehend its original Formation and Extent; or even to deny there is a SUPREME GOVERNOR of all Things, becauſe we ſee him only in his Works. Our *conſcious Perception* is the *Standard* by which we compare and meaſure all Things known; the taking of which *Standard* of all Knowledge away, as our *chimerical Author* propoſes, and placing in its Stead an *imaginary Perception*, deſtroys the very *Identity* of our Being, and is introductory to all Kinds of *religious Hypocriſy*, not inferior to the diabolical *Impoſture of Methodiſm!*

Mr. *Locke* (*ſee Vol.* I. *ch.* 23. *Sect.* 5. *Eſſay of human Underſtanding*) obſerves "That it is as rational to affirm there is *no Body* or *corporeal Subſtance*, " becauſe we have no clear and diſtinct Ideas of the *Subſtance of Matter*, as to ſay there is *no Spirit*, becauſe we have no clear and diſtinct *Idea* of the Subſtance of *Spirit*." And in his *Chapter of the Abuſe of Words*, he ſays, "The " Word *Matter* is productive of infinite *Diſputes*, as if there were ſome ſuch " Thing *really* in Nature diſtinct from *Body*; as 'tis evident the Word " *Matter* ſtands for an *Idea* diſtinct from the *Idea* of Body. For, if the " *Ideas*, thoſe Terms ſtood for, were perfectly the ſame, they might, indif" ferently, in all Places be put for one another. But though it is proper to ſay " *there is but one Matter of all Bodies*, one cannot ſay, with Propriety, there is " but *one Body of all Matters*. We familiarly ſay, one Body is bigger than ano" ther; but never ſay one *Matter* is bigger than *another*."

But while our Author diſputes the Reality of *Matter*, he is obſerved to ſubſtitute the Words *Body*, *Things*, *Objects*, &c. of ſynonymous Import; and implies and proves *Matter* in his own Terms.

And, as to *general* or *abſtract Ideas*, denied by our *Author*, which the Mind collects and diſtinguiſhes, at Pleaſure, for its ready Communication, he is obſerved to uſe Terms of *equivalent Import* or Ideas. The abſtract Idea of *Man* he denies, without being perceived *tawny*, *crooked*, &c. alſo his Objection to animal, is denying the *Genus* of all *Species*, or elſe including all the Accidents in a *Species*, not at all neceſſary to convey the *general or abſtract Idea*. And therefore his conſidering a *Triangle* by the Colour of the *included Space*, and other Incidents, while the *three Sides* thereof are ſufficient to convey the *general Idea*. And all the Modes he would conſider in a *general Idea*, are as needleſs as they are endleſs and uſeleſs.

Mr. *Locke* deduces all the human Knowledge from *Senſation* and *Reflection*, which Dr. *Berkley* oppoſes by *original Principles* and *innate Ideas*: though Mr. *Locke* ſhews, in his Chapter on Purpoſe, that there are no *innate Ideas*.

And with Reſpect to no external Exiſtence, affirmed by Dr. *Berkley*, making all Things exiſt in the Mind — *If abſolute Imperception implies abſolute Non-exiſtence*, as it certainly does, and Things exiſt only in Reſpect of being perceived by ſome Being or Mind, a *Mind* can no more exiſt without *Objects* of its Perception, than *Objects* of *Perception* can exiſt without a *Mind* to perceive them, one implying the other. And there could be no *Univerſe* without a Mind exiſting ſufficient to comprehend it; that is, *there could be no infinite Space and Subſtance, without the infinite Being of a God.*

Unity is ſaid by our Author, to be no *relative* Quantity; Fire not the Cauſe, but Admoniſher of Heat, and ſuch contradictory Aſſertions to the Evidence of Senſe, as are unworthy a true Philoſopher; but here recited againſt ſuch *impoſing chimerical Doctrines!*

Bodies, of themſelves, we all know, are neither *hot*, *cold*, *rough*, *ſmooth*, *hard*, *ſoft*, *ſwift*, *ſlow*, &c. but only ſo in Reſpect of thoſe Impreſſions they make on the *Senſes*, and muſt have Effects ſtill different on different organized Beings, whatever Dr. *Berkley* has taught to the *contrary*.

For Things appear different through a *Microſcope* or *Teleſcope*, and to the naked Eye. A *Roſe* and the Colour of *Graſs* may differ in *Smell* and *Colour* to different Animals; as *that* to a *Canine* Animal may have a grateful *Smell* which is offenſive to the *human Species*: ſince the ſmelling and other Faculties of Animals are obſerved to differ greatly both in Acuteneſs and Adaptneſs to Perception.

The Mind of Man, Mr. *Locke* obſerves, (*in his Eſſay of human Underſtanding*) *can be employed but in three Provinces*, 1. *About* Exiſtence *of Things, their Attributes, Modes, Qualities.* 2. *In* Agency, *concerning* Action, *and the Means of attaining any End propoſed, eſpecially Happineſs.* 3. *In* Words *or* Signs *for recording and communicating what it knows.* — But Dr. *Berkley* aſſigns other Means of Knowledge, and Employ of our Faculties, never before known, by *Viſion* (like *Norris's ideal World*) to confute Mr. *Locke's Reaſoning*, without offering a Reaſon of his own. Alas! the Bp. of *Worceſter*!

He has likewiſe attempted to confute Sir *Iſaac Newton*'s demonſtrative Science by an imaginary Kind of Perception of Things (of Ghoſts and departed Quantities!) raiſing Batteries againſt his *Principia*, *mathematical* and experimental Philoſophy, *Optics*, &c. in Hopes of overturning and demoliſhing the *greateſt Works* of *Genius and Science that ever the ſagacious Mind of Man produced*, merely to eſtabliſh a *ſuperſtitious Science* or *jeſuitical Doctrine* of his own: But (*like Guy Vaux with his Tinder-box, and dark Lanthorn*) he failed of Succeſs. But ſurely if there are ambitious or envious Men, not verſed in true Science, who exert their *ſophiſtical Abilities* to *diſcolour* Truth and propagate *Error*, repreſenting *Fictions* of the Imagination for *Realities* of God's Works in Nature, with a View to depreciate *great Men* and *great Talents*, to eſtabliſh falſe Doctrines, and raiſe their own Reputation, they muſt, certainly, be guilty of a *Crime* worthy of the ſageſt Philoſopher to detect and expoſe.

And ſuch Books, founded on *Fallacy*, inſtead of Truth, to debauch unwary Minds with *Principles of Error*, certainly deſerve (*like Books of Impiety*) Correction from the Flames—ſparing the Author.

Ταυτολογος.

OBSERVATIONS on the People in the *World*, called CHRISTIANS.

By a QUAKER.

As I have lived ſo I truſt I ſhall die in the true Faith of Chriſt, as taught in the Scriptures; but not as taught and practiſed in any one viſible Church I know of. Clauſe in the late Judge *Burnet*'s laſt Will and Teſtament.

TO obſerve with what *Zeal* and *Warmth* the Inhabitants of what is called the *Chriſtian Part of the World*, attack each other, in the Name of Religion, is Matter of Wonder! conſidering how *ſimple* and uncompounded is the *Law of Equity*, which no Man, capable of knowing wholſome *Food* from *Poiſon*, can be ignorant of, and how to chooſe the one, and refuſe the other for his Safety and Intereſt!

We may conſider the *Cauſe* of Diſſentions and Quarrels, among the People *called*

called Chriſtians, to be *Avarice*, or a Deſire of one Part to engroſs a Power and Command over the other, ſo as to poſſeſs themſelves of the other's Property; and a Pleaſure that one takes in the others Dependance and Captivity. He, who gets the Poſſeſſion of *Power*, thinks it his Right to keep it, as thoſe, who are become his *Captives*, think the *contrary*. But, if a *Majority* were to determine, who ſhould have the Power, the Poſſeſſor would looſe it, and Men would be reduced to *a. Level*. When other Differences, *among New Pretenders and Deſigning Men*, would ariſe, under the Notion of *doing Good* to their Neighbours, till ſome got themſelves poſſeſſed of the ſame Power and Treaſure with the former.

This has been the Practice of what is called the *Chriſtian Part of the World*, under the Name of *Chriſtianity*. But we all know, that the Law of *Equity* or *Honeſty*, is plain and eaſy, viz. *To do as we would be done by*, *Love our Neighbour as ourſelves*, and *aſſiſt* the *Diſtreſſed*, the *Fatherleſs*, and the *Widow*. Inſtead of which, we find the Thoughts of Mankind are eagerly employed, who *ſhall engroſs the Riches of the Earth in the greateſt Extent, ſo as to acquire a Power over their Fellow Beings, and therein pervert the Law of Right*. Our Stores are never full, nor Power ſufficient. If we poſſeſs the daily Food of *Millions*, and keep them dependant on our Will, yet *Avarice* is not ſatisfied; more is ſtill ſought, more is ſtill deſired.

This *Cauſe* has brought Mankind into *Parties*, that the *moſt Avaritious* may be reſtrained in their Purſuits of Gain by others; and that the Wealth and Power of ſome may not be extended to the Prejudice of others.

Our *Saviour* ſeeing this Practice among Men, of ſome engroſſing the Labour and Properties of others, commanded his Apoſtles and Followers *not to lay up Treaſure on Earth*; God having beſtowed on Mankind all Things needful. To inforce his Doctrine, he bid them look at the *Birds of the Air, and Flowers of the Field, daily and bountifully ſupplied*: aſſuring them that they had Beauty of Cloathing exceeding King *Solomon*'s in all his Glory.

It may be objected, that *we muſt go with the Multitude, or periſh*: but how then can this Cuſtom be termed *Chriſtianity*, directly oppoſite to the *Laws of Equity*? *Do this and live, or ye ſhall ſurely die.*

Faith, thro' *Chriſt*, without Works, St. *Paul* ſaith, is dead. And there is no *Medium* betwixt Good and Evil, Right and Wrong, Juſt and Unjuſt: But then it may be demanded, *what muſt we do? how ſhall we act not to offend?*

In anſwering which, a Diſtinction ſhould be made between *Religion* and *Politics*, or between the *Law of God*, and the inſidious *Craft of Men*; for theſe never can be united. The Firſt is the *Standard Law*, from the Foundation of the World; the Latter *That* which is made and altered, as ſuits with the Pleaſure and Intereſt of Men in Power, who would ſubject thoſe under them to obey their Will, in each *Kingdom*, *Province*, *City*, or *Corporation*.

The *Laws of Society*, we find, are founded on the corrupt Principles of Mankind, to prevent a growing *Evil*; which are likewiſe *mixed* with the Deſign of *gaining Power over their Fellow-Beings*. The *Law of God*, or of *Equity*, is juſt, and alike to all, makes all happy, and alike Sharers of what is needful. No more Food is required for a *Prince* than a *Peaſant*, for a *Prieſt* than a *Pauper*. God, in his great Wiſdom, diſtributed every Thing neceſſary throughout the World. But the *Prince* claims a Right to a *Kingdom*, a *Holy Father* to a *Province*, a *Prieſt* to a *Pariſh*. How far the Prerogative of the Creator and Great Giver is infringed on, I leave others to determine.

As Men now live, the *Practice of Chriſtianity* ſeems to join *in thoſe Meaſures to get, by Plunder, what they can*, (like Projectors under a Board!) *iſe the weak, to make themſelves ſtrong, to climb towards the Prince, and d Riches like the Prieſt, and get Ten Thouſand Treaſures of the Creation into* *their Poſſeſſion.* Number of their Fellow-Beings muſt then become their Dependants and Captives; Grandeur will then appear; Power riſe above Equity, and Reaſon; Poſſeſſion above Religion; and Pleaſure become more valuable than the Lives and Happineſs of a Number of poor Captive Slaves.

N. B. *When the* SPIRIT *moved our* FRIEND, *he forgot the* Glory, Protection, *and* Subordination *of Government.*

Of COMETS.

THEY are ſolid and opaque Bodies ſhining by the Sun's Light, reflected from them, and ſurrounded with vaſt *Atmoſpheres.* Their Uſe being to convey Heat, which they receive from the Sun, to very remote Regions, their *Denſity* muſt be vaſtly greater than that of our *Earth, Moon,* or *Planets,* for retaining that Heat they convey. The *Comet* ſeen in 1680 approached the Sun within a *Sixth* Part of his Diameters, or within 102204 Miles from his Surface, and received a Heat 2000 Times greater than that of a red-hot Iron: (*See Principia, B.* 3. *p.* 361) which Heat was ſufficient to diſſipate and conſume all volatile Matter, or to turn any known Subſtance into Vapour or Glaſs. A *Comet* being little leſs than our Earth, and thus heated by the Sun, will retain its Heat a prodigious long Time: For a Globe of *Iron,* as big as our Earth, being made red-hot, its Heat (according to Sir *Iſaac Newton*'s Experiments) will not evaporate in leſs than 50000 Years.

The *Comets* move in all Direction croſs the planetary Regions. Some, like the Planets, move according to the Order of Signs in the *Ecliptic,* from Right to Left; others *retrograde,* from Left to Right, contrary to the Order of Signs; Some from *North* to *South,* or from *South* to *North,* in all Directions croſs the Heavens; but chiefly move within the Limits of the *Zodiac,* ſeldom deviating to 40° of Latitude. Their Motions are regulated by the ſame Laws of *Projectile* Force and Gravity, by which the ſeveral Planets are retained in their Orbits. And the Wiſdom of the *Divine Architect* has contrived the *Planes* of the Orbits of Comets not to be nearly *coincident,* but oblique with the *Planes* of the Orbits in which the Planets move, to prevent Colliſion, or Diſturbance from Attraction of thoſe Bodies, which muſt probably have happened, and the Harmony of their Motions have been deſtroyed, had the Comets paſſed the planetary Orbits in a Direction not ſo oblique to their Planes. In their preſent *Poſitions,* the Comets and Planets circulate with the greateſt Freedom, without ſuffering, or cauſing Diſturbance from one another.

The Orbits of the Comets are likewiſe ſo diverſified and contrived in the vaſtly different Extents of their Orbits and Times of their reſpective Revolutions therein, that, in the *extreme Parts* of thoſe ſeveral Orbits, where the Comets move the *ſloweſt* of all, (*ſcarcely accelerating or retarding for a long Time*) they cannot ſuffer Reſiſtance or Diſturbance from each other's *Gravity,* being at ſo great a Diſtance: but being otherwiſe near in the Extremes of their Orbits, that Vicinity would deſtroy the Harmony of their Motions, by their Gravitating to a Contact with each other. Whereas, by this great Diverſity of their Orbits, in Variety of Directions, the Harmony of their ſeveral Motions is preſerved thro' all Parts of the Univerſe.

The vaſt *Difference* of a Comet's *very ſlow* Motion, (ſcarcely moving at all in the extreme Parts of its Orbit from the Sun) and its very *rapid Motion* in deſcending to the Sun's Neighbourhood and our Obſervation, is probably the Cauſe of the great Uncertainty of our determining the Time of a Comet's *periodical* Revolution. Another *Impediment* to finding a Comet's Time of Revolution is the great Length of that Time; and Employ may be found for Ages to come in determining the different *Species* of the Orbits of Comets, according to the Methods in Uſe.

See Prop. 41 *and* 42. *B.* 3. *Principia.*

The *Tail* of a Comet is always *directed* to the *contrary Part* of the Heavens from the *Sun and its Head*; and is always deflected or bent from that right Line, contrary to the Direction of the *Comet's Motion*; as the Stream of a *Fire-Work* on a Boy's Hat is bent from the Line of his Height, the contrary Way to that of his Running. So that the Curvature of the Tail of a *Comet* deſcending towards the Sun, is concave towards the *Axis* of its Orbit, as far as the extreme of the *Parameter*, and from thence *Convex* to its *Axis*, in going to its Perihelion; which having paſſed it becomes again concave to the Axis, as far as the other extreme of its *Parameter*, and then again *Convex* during its Appearance, in aſcending from the *Sun*. And this Comet's *Tail* is nothing elſe but the *fine Vapour*, which the Head, or *Nucleus*, emits by its Heat; and is *moſt refulgent* immediately after the Comet has paſſed its Perihelion, or *neareſt* Diſtance to the *Sun*.

Of the COMET *expected to return* THIS YEAR, 1758.

THE Period of this COMET is agreed to be about 75½ Years, at a Mean Quantity, admitting it to be the ſame *Comet* that was obſerved in 1607 and 1682, or that it returns in 75 and 76 Years alternately, and conſequently have made 70 Revolutions ſince the *Æra* of Creation. Its Motion is *retrograde*, and according to Dr. *Halley*'s correct Computations, its Orbit deſcribed in 1607, had its aſcending *Node* in *Taurus* 20° 21′, and the Angle of its *Inclination* to the Plane of the *Ecliptic* was 17°. 2′, the Time of its neareſt Diſtance to the Sun, *Oct.* 16, 3^h 50^m P. M. Since which Time, in 1682, its aſcending Node, by Dr. *Halley*'s Computation, was in 21° 16′½ of *Taurus*, the *Inclination* of its Orbit to the Plane of the Ecliptic 17° 56′; the Time of its paſſing the Perihelion, *Sept.* 4th. 7^h 39^m differing but 17 *Min.* from Mr. *Flamſteed*'s correct Obſervations,—This *Comet* moſtly appeared in an Evening, its Orbit in the Form of a *great Circle* bended, at laſt, a little towards the *Ecliptic*; its *Head* unequally round, protuberating in ſome Places, but its *Splendor* or Brightneſs, like that of Stars of the 1ſt and 2d Magnitudes. Its Tail long and thick, projecting, with ſome Deviation, towards the oppoſite Part of the Heavens to the Sun. It appeared like a *Lance* or *Flaming-Sword*, about 7 *Degrees* in Length. Mr. *Flamſteed*, in 1682, found the leaſt apparent Diameter of its *Head*, by the *Micrometer*, to be about 2′; but the *Nucleus*, or Star, in the Middle thereof, ſcarcely amounted to a *tenth* Part of that Quantity, or 12″: Therefore its *Diſtance* was then about 621 *Millions*, 600 *thouſand* Miles from the *Sun*.

Its *Aph. Diſt.* from the Sun was to the Earth's Mean Diſtance about 35 to 1; therefore this *Comet*, when in *Aphelion*, was about 2 *thouſand* 835 *Millions of Miles from the Sun*.

This *Comet* was alſo ſeen in 1531, the Inclination of its Orbit to the Plane of the Ecliptic was then 17° 56′, and the Time of its *Perihelion*, or neareſt Diſt. from the Sun was near the *latter End of October*.

In the Year when *Julius Cæſar* died, 44 Years before *Chriſt*, a remarkable Comet appeared in the Month of *September*, then again in the Year 531, when *Lampadius* and *Oreſtes* were Conſuls of *Rome*, and again, in the Year 1106 in *February*, and laſtly in *December* 1680; having a very long and *remarkable Tail*, which was not ſo conſpicuous at *Cæſar*'s Death, because of the Earth's Poſition at that Time. The *Period* of this *Comet* (as obſerved in our *Prize-Queſts* for 1756) is 575 Years, which is expected again in 2255. It approached very near the Sun, and received prodigious Heat.

It is ſuſpected by Aſtronomers, that the *Comet*, which appeared in 1161, is the ſame which was ſeen before in 1532.

Among the numerous Comets which are continually circulating in vaſt Orbits, and in various Directions, thro' the Heavens, only theſe *three Comets* mentioned, and their periodic Revolutions, are certainly known and diſtin-

It having been lately affirmed by a *Comet-Geographer*, that if the *Comet* expected ſhould happen to be in its deſcending *Node* on the 18th of *May*, 1758, that “ our Earth will then be involved in the hotter and denſer Part of its “ Tail”. So, by the ſame Sort of Suppoſition, *if the Moon ſhould happen to to loſe its projectile Force along its Orbit, it will deſcend to the Earth, by the Force of Gravity, and involve its Inhabitants in the ruinous Shock! But as neither the one, nor the other, are half ſo likely to happen, as the falling of St.* Bride's Spire *in* Fleet-ſtreet *(already ſhaking) or the overgrown Building of St.* Paul's, *to cruſh the neighbouring Inhabitants, ſo neither of theſe Prodigies, from Accidents, to the* DIVINE WORKMANSHIP, *are to be dreaded.* Tho' *Lightning, Earthquakes, Tempeſts,* &c. incident to GOD's Works, in the *general Laws* of Nature, are accidentally deſtructive to *Particulars,* yet we find his *Providence* regards the Preſervation of the *whole.*

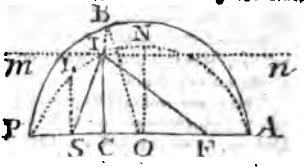
N. B. Comets have been ſeen apparently as large as the Moon, entered our Syſtem, paſſed ſwiftly near our Earth towards the Sun, accelerating by that Vicinity, and having paſſed their Perihelion, returned to the remote Parts of their Orbits without doing any other Harm (though greater has been lately apprehended) than exciting the Admiration more than the Dread of the wiſer Part of Mankind.

For a farther Account of this wonderful Part of the Creation, See our Aſtronomia Accurata, *or* Royal Aſtronomer *and* Navigator, *now in the Preſs, great Part printed off, and to be publiſhed as ſoon as conveniently can be* .

N. B. For want of Room we are obliged to omit the reſt of our Ephemeris *for* 1758; *the Places, Declinations, Latitudes, Riſing and Setting of all the Planets, (to every 5th Day) correctly computed, in 4 Pages;* ☽*'s Riſing, Southing, and Setting, in 2 Pages; Sun's R. A. to Seconds of Time, and* ☽*'s R. A. and Declination to Seconds of Degrees, for each Day at Noon, in 4 Pages; being 10 Pages of accurate Computations for the Year omitted, to make Room for general Matter; beſides our Account of a Big Man, the Great City of* Babylon, *(the World's Wonder!) the Rev. Dr.* Bolton's *Account of Comets, and his Tabular Elements of the* Comet *of* 1744, *accurately computed, &c. to be publiſhed in a Supplement.*

A GEOMETRICAL PROBLEM, *in* Thacker's Miſcellany, *with its* CONSTRUCTION *and* SOLUTION. *By the Rev. Dr.* Bolton *of* Stalbridge.

GIVEN the Baſe SF = 109 (of any Triangle SIF). *The Sum of the Sides* SI + FI = 181, *aud alſo the Perpendicnlar* IC = 68, *let fall from the Angle at the Vertex on the Baſe* (whether within or without the △) *to find the Angles and Sides?*



CONSTRUCTION. Make the Points S, F, the two *Foci* of an Ellipſis, whoſe middle Point O is the Center thereof, and SI + FI = PA the Tranſverſe. With PO = ½ PA deſcribe the Semicircle PBA. Draw *m*I*n* Parallel to PA, at the Diſt. IC, and the △ SIF is determined.

SOLUTION. — By the Property of an Ellipſis, $\sqrt{PS \times SA} = NO = \frac{1}{2}$ Conjugate; and $\frac{IC}{NO} =$ S. ∠ COB; which ∠, in *Aſtronomy*, is the excentric Anomaly from P.

And $\sqrt{SA} : \sqrt{SP}$ :: T. ½ ∠ AOB : T. ½ ∠ ISF = one ∠ required; which ∠, in *Aſtronomy*, is the true Anomaly from A.

Again, S ½ ∠ $\overline{ISF}$: S. ½ ∠ AOB :: $\sqrt{SP} : \sqrt{SI}$ = one Side required which Side, in Aſtronomy, is the *heliocentric* Diſtance:

N. B. If IC is greater than the *Semi Latus Rectum* of the [redacted]pſis, t[redacted] ident it falls within, otherwiſe without the Triangle. But the *Semi Latus*

ctum $= \frac{NO^2}{PO} =$ SL.

Whence are eaſily found ∠ ISF = 70° 37′ 12″; ∠ SFI = 38° 38′ 0″; SIF = 70° 44′ 48″; and SI = 72,08415; and conſequently FI = 8,91585. Q. E. I. — *N. B.* Our great Obligations to the *Dean* of *Dur-m* for Aſtron. Improvmts. and his ſupr. Imprts. to all, will ſoon appear!

QUATION of the SUN's PLACE for 1ſt *Year after Leap-Year.* According to Dr. *Halley*'s Tables.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	+	+	+	+	+	+	+	+	+	+	+	+
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
1	1 44	1 46	1 47	1 49	1 51	1 52	1 53	1 52	1 51	1 49	1 47	1 45
1	1 45	1 46	1 48	1 50	1 52	1 53	1 53	1 52	1 50	1 48	1 46	1 45
2	1 45	1 47	1 48	1 51	1 52	1 53	1 53	1 51	1 50	1 48	1 46	1 44

EQUATION of the SUN's PLACE for the 2d Year after *Leap-Year.*

1	3 28	3 32	3 34	3 38	3 42	3 44	3 46	3 44	3 42	3 38	3 34	3 30
1	3 30	3 32	3 36	3 40	3 44	3 46	3 46	3 44	3 40	3 36	3 32	3 30
1	3 30	3 34	3 36	3 42	3 44	3 46	3 46	3 42	3 40	3 36	3 32	3 28

EQUATION of the SUN's PLACE for the 3d Year after *Leap Year.*

1	5 12	5 18	5 21	5 27	5 33	5 36	5 39	5 36	5 33	5 27	5 21	5 15
1	5 15	5 18	5 24	5 30	5 36	5 39	5 39	5 36	5 30	5 24	5 18	5 15
1	5 15	5 21	5 24	5 33	5 36	5 39	5 39	5 33	5 30	5 24	5 18	5 12

EQUATION of the SUN's PLACE for each *Leap-Year,* for about 60 Years.

1	1 44	1 45	1 47	1 49	1 51	1 53	1 53	1 53	1 50	1 48	1 46	1 45
1	1 45	1 46	1 48	1 50	1 52	1 53	1 54	1 52	1 49	1 47	1 45	1 44
11	1 45	1 46	1 48	1 51	1 53	1 53	1 53	1 51	1 49	1 47	1 45	1 44

EXAMPLE I. The *Sun's Place being* ♉ 22° 4′ 18″ *on May* 12, 175 oon, *required his Place* on the *ſame Day* 1758 *at Noon?*

☉ . . ♉ . 22° 4′ 18″ May 12, 1756.
Equa. . + 3 43 2d Year.
☉ . . ♉ 22 . 8 . 1 Noon on *May* 12, 1758, *required.*

EXAMPLE II. The *Sun's Place being* ♎ 16° 34′ 59″ on *October* 9, 1756, *Noon, required his Place on the ſame Day at Noon,* 1763?

☉ . . ♎ 16° 34′ 59″ Oct. 9, 1756.
Equa. + 1 48 . 1. Leap Year, 1760.
+ 5 27 . 3d Year after Leap Year.
☉ . . ♎ 16 42 14 Noon, on Oct. 9, 1763, required. *So for the Reſt.*

To find the Moon's Place 1733, *May* 27*th,* 20h 27′ 53″? See Dr. Halle s Tables ☽ ⊕.

☽	☽ Ap.	☊.	
0s 29° 13′ 38″	7s 6° 56′ 42″	8s 0° 38′ 20″	M. T. by Tables.
1. Æ. — 4 7	+ 7 20	— 7 20	
0 29 9′ 31	7 7 4 2	8 0 31 0	☊
+ 5 59	9 leſs Æq.	2 17 23 28	Sun's Pl.
0 29 11 10		11 8 29 33	Sun's An.
— 55 52	Æq. Center ☽.	5 22 5 29	Moon's m. A.

MEAN MOTIONS *of the* SUN *and* MOON. *According to Mr.* Mayer.

365d. 5h. 48m. 51s. 12th. (rather 7th.) Sun's tropical Year: The ☽'s mean Periodical Month, he ſays, varies or *leſſens* from *Antiquity* with the Increaſe of Time; decreaſing in an Age 1th. 5fo. 15fif. Sun's m. Mot. in 100 [Jul. Yrs is 100r 0s.0° 45' 46" 40'''.

d h m s th fo.
27 7 43 4 45 1 *Quantity of* } *Be-* { of this *preſent Age.*
27 7 43 5 3 40 *Lunar Month* } *gin.* { *of the Christian Æra,*
[*or bet. Hyparchus and Ptolemy.*

Hence a Mean *Sydonical* Month (as he ſuppoſes) decreaſes perpetually. *Quere the Accuracy of antient Obſervations?*

d h m s th fo.
29 12 44 2 53 23 *Sydonical* } *Be-* { of this *preſent Age.*
29 12 44 3 15 0 *Month* } *gin.* { *of the Christian Æra.*

Whence in a ſingle Age (he ſuppoſes) it decreaſes 1th. [16fo. 16fif.

s ° ' "
1 10 43 24 *above Revol. by Mr.* Mayer, *Moon's mean Mo-* [*tion in 60 Years of our preſent Age.*
1 10 41 10 *above Revol. by other* Tables, *comparing modern* [*with antient Obſervations.*
1 10 42 15 *above Revol. by the principal Aſtronomers.*

Hence, according to Mr. MAYER'S PRINCIPLES,

267r 4s 13° 34' 28" 0''' *Mean Motion in* 20 Jul. *Years.*
53 5 20 42 53 36 *Mean Motion in* 4 Jul. *Years.*
In the preſent Age . . . 27d,3215827586 +

Hence, a Periodical Month 27 7h. 43m. 4s. 45th. 1fo. 14fif.

641s,690496296296 Moon } Mean { in 4 *Julian*
48 ,001017285227 Sun } Mot. { Years,

Dif. 593 ,689479011069 ☽ à Sun.

A Synodical Month 29d,5305890028 +
29 12h. 44m. 2s. 53th. 23fo. 25fif.

Sign.
,439213207595 + } *Moon's daily mean Mo-*
13° 10' 35" 1''' 35iv 6v 46vi } *tion.*

,0328549057 39 } *Sun's daily mean Mo-*
59' 8" 19''' 47iv 21v 4vi } *tion.*

Dif. ,406358301856 } ☽ *à Sun's daily mean*
12° 11' 26" 41''' 47iv 45v 42vi } *Motion.*

13r 4s ,312820772175 +
13r 4s 9° 23' 4" 38''' 36iv 11v Moon's mean Motion in [365 Days.

Acceleration of the *Moon's mean Motion.* To be added to her mean Longitude.

Yrs. b. & since Christ	+ °	'	"
800	1	9	48
700	1	4	19
600	0	59	4
500	0	54	3
400	0	40	15
300	0	44	40
200	0	40	19
100	0	36	11
0	0	32	16
100	0	38	35
200	0	25	7
300	0	21	53
400	0	18	52
500	0	16	5
600	0	13	31
700	0	11	10
800	0	9	3
900	0	7	9
1000	0	5	28
1100	0	4	1
1200	0	2	48
1300	0	1	47
1400	0	1	0
1500	0	0	27
1600	0	0	7
1650	0	0	2
1700	0	0	0
1750	0	0	2
1800	0	0	7
1850	0	0	15
1900	0	0	27
1950	0	0	42
2000	0	1	0

According to the celebrated *Tobias Mayer* of *Gottingen.*

N. B. *In* Lunar Eclipſes *the Sem. Diam. of* ⊖'s *Shadow, found by the common Rules, is to be increaſed by its* 60th *Part for the circumſcribing* Atmoſphere, *or as many Seconds to be added, as it contains firſt Minutes.*

0s 28°	15'	18"		
—1	20	42	Evecn Æq.	
0 26	54	36		
—	38	2	Varn Æq.	
0 26	16	34	☽ in Orb.	
+	6	29	Redn Æq.	

Dr. *Halley's* Compn. difs. — 8' 20" fr. Obn.,
[this Compn — 2 59
For ♈ 26° 26' 2" ☽ obsd.

See our Supplement to this Palladium, for many other Particulars, to be published Christmas. Price 6d.

Argument proper.	2. Equation ☽.						3. Equation ☽.			4. Equation ☽.			Argument proper.
	Argument,						Argument,			Arg. 2. ☽ à ☉ +			
	☉ à ☽'s Apogee.						☉ à ☊.			☉ An. — ☽ An.			
	☽ M. An. — ☽ à ☉.						0	1	2	0	1	2	
	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	−	−	−	+	+	+	
	0	1	2	3	4	5	6	7	8	6	7	8	
	−	−	−	∓	+	+	−	−	−	−	−	−	
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	0 0	3 11	3 22	0 29	2 32	2 42	0 0	0 41	0 41	0 0	0 54	1 34	30
1	0 8	3 15	3 19	0 22	2 35	2 39	0 2	0 41	0 40	0 2	0 56	1 35	29
2	0 15	3 19	3 15	0 15	2 39	2 36	0 3	0 42	0 39	0 4	0 57	1 36	28
3	0 23	3 22	3 11	0 8	2 42	2 32	0 5	0 43	0 38	0 6	0 59	1 37	27
4	0 30	3 25	3 7	0 1	2 45	2 28	0 6	0 43	0 37	0 8	1 0	1 38	26
5	0 38	3 28	3 3	0 6	2 48	2 24	0 8	0 44	0 36	0 10	1 2	1 39	25
6	0 45	3 31	2 58	0 13	2 51	2 20	0 10	0 45	0 35	0 12	1 3	1 39	24
7	0 53	3 33	2 53	0 20	2 53	2 15	0 11	0 45	0 34	0 13	1 5	1 40	23
8	1 0	3 36	2 48	0 27	2 55	2 11	0 13	0 46	0 32	0 15	1 6	1 41	22
9	1 8	3 38	2 43	0 34	2 57	2 6	0 14	0 46	0 31	0 17	1 8	1 41	21
10	1 15	3 40	2 38	0 41	2 59	2 1	0 16	0 46	0 30	0 19	1 9	1 42	20
11	1 22	3 42	2 32	0 48	3 0	1 56	0 17	0 46	0 29	0 21	1 10	1 42	19
12	1 29	3 43	2 27	0 54	3 1	1 51	0 19	0 47	0 27	0 23	1 12	1 43	18
13	1 36	3 44	2 21	1 1	3 2	1 46	0 20	0 47	0 26	0 24	1 13	1 44	17
14	1 43	3 44	2 16	1 8	3 3	1 40	0 22	0 47	0 25	0 26	1 15	1 44	16
15	1 50	3 45	2 10	1 14	3 4	1 35	0 23	0 47	0 23	0 28	1 16	1 45	15
16	1 56	3 45	2 4	1 20	3 4	1 29	0 25	0 47	0 22	0 30	1 18	1 45	14
17	2 3	3 44	1 58	1 26	3 3	1 23	0 26	0 47	0 20	0 32	1 19	1 46	13
18	2 9	3 44	1 51	1 32	3 3	1 17	0 27	0 47	0 19	0 33	1 20	1 46	12
19	2 15	3 43	1 45	1 38	3 2	1 11	0 29	0 46	0 17	0 35	1 22	1 46	11
20	2 21	3 43	1 38	1 44	3 2	1 5	0 30	0 46	0 16	0 37	1 23	1 47	10
21	2 26	3 42	1 32	1 49	3 1	0 59	0 31	0 46	0 14	0 39	1 24	1 47	9
22	2 32	3 41	1 25	1 55	3 0	0 53	0 32	0 45	0 13	0 41	1 26	1 47	8
23	2 37	3 39	1 18	2 0	2 59	0 46	0 34	0 45	0 11	0 42	1 27	1 47	7
24	2 43	3 37	1 11	2 5	2 57	0 40	0 35	0 44	0 10	0 44	1 28	1 47	6
25	2 48	3 35	1 4	2 10	2 55	0 33	0 36	0 44	0 8	0 46	1 29	1 48	5
26	2 53	3 33	0 57	2 15	2 53	0 27	0 37	0 43	0 6	0 48	1 30	1 48	4
27	2 58	3 30	0 50	2 19	2 50	0 20	0 38	0 43	0 5	0 49	1 31	1 48	3
28	3 2	3 28	0 43	2 24	2 48	0 14	0 39	0 42	0 3	0 51	1 32	1 48	2
29	3 7	3 25	0 36	2 28	2 45	0 9	0 40	0 41	0 2	0 52	1 33	1 48	1
30	3 11	3 22	0 29	2 32	2 42	0 0	0 41	0 41	0 0	0 54	1 34	1 48	0
Argument proper.	+	+	+	±	−	−	+	+	+	−	−	−	Argument proper.
	11	10	9	8	7	6	11	10	9	11	10	9	
	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	+	+	+	+	+	+	
	2. Equation ☽.						5	4	3	5	4	3	
							3. Equation ☽.			4. Equation ☽.			
	Arg. above transformed, as forwd.						As above.			M. Ev. + ☉ An.			
	[10]						[9]			[4]			

N. B. Argument of Mean *Evection* = 2. ☽ à ☉ — ☽ m. An. = ☽ m.

EQUATIONS Extraordinary of the MOON continued.

Argument proper.	9. Equation ☽. Argument. 2. ☽ à ☊ — ☽ An.			10. Equation ☽ Argument. ☽ An. — ☉ An.			Argument proper.
	0	1	2	0	1	2	
	+	+	+	+	+	+	
	6	7	8	6	7	8	
	—	—	—	—	—	—	
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	0 0	0 29	0 50	0 0	0 20	0 35	30
1	0 1	0 30	0 50	0 1	0 20	0 35	29
2	0 2	0 31	0 51	0 2	0 21	0 36	28
3	0 3	0 31	0 51	0 2	0 21	0 36	27
4	0 4	0 32	0 52	0 3	0 22	0 36	26
5	0 5	0 13	0 52	0 4	0 23	0 37	25
6	0 6	0 34	0 53	0 4	0 23	0 37	24
7	0 7	0 35	0 53	0 5	0 24	0 37	23
8	0 8	0 35	0 54	0 6	0 24	0 37	22
9	0 9	0 36	0 54	0 6	0 25	0 38	21
10	0 10	0 37	0 54	0 7	0 26	0 38	20
11	0 11	0 38	0 55	0 7	0 26	0 38	19
12	0 12	0 38	0 55	0 8	0 27	0 38	18
13	0 13	0 39	0 55	0 9	0 27	0 38	17
14	0 14	0 40	0 56	0 9	0 28	0 38	16
15	0 15	0 41	0 56	0 10	0 28	0 39	15
16	0 16	0 41	0 56	0 11	0 29	0 39	14
17	0 17	0 42	0 56	0 11	0 29	0 39	13
18	0 18	0 43	0 57	0 12	0 30	0 39	12
19	0 19	0 43	0 57	0 13	0 30	0 39	11
20	0 20	0 44	0 57	0 13	0 31	0 39	10
21	0 21	0 45	0 57	0 14	0 31	0 39	9
22	0 22	0 45	0 57	0 15	0 32	0 40	8
23	0 23	0 46	0 58	0 15	0 32	0 40	7
24	0 24	0 46	0 58	0 16	0 33	0 40	6
25	0 25	0 47	0 58	0 17	0 33	0 40	5
26	0 26	0 47	0 58	0 17	0 34	0 40	4
27	0 27	0 48	0 58	0 18	0 34	0 40	3
28	0 27	0 49	0 58	0 19	0 34	0 40	2
29	0 28	0 49	0 58	0 19	0 35	0 40	1
30	0 29	0 50	0 58	0 20	0 35	0 40	0
	—	—	—	—	—	—	
	11	10	9	11	10	9	
	+	+	+	+	+	+	
	5	4	3	5	4	3	
Argument proper.	9. Equation ☽. Evec. + 2. ☉ á ☊			10. Equation ☽ ☽ An. — ☉ An.			Argument proper.

[7] [8]

EQUATION of the Equinoctial *Points*, applied to the computed, for the real Lonˢ. from the Equinox; according to the Ecliptic Oblyʸ. for Nutaⁿ. of ⊖'s Axis.

Lon. ☊	Equ. æq. Pts.	Ecliptic Obliquity.	Equ. æq. Pts.	Lon. ☊
Arg. Long. ☊ ☽.				
	—		+	
s °	″	° ′ ″	″	° s
0 0	0	23 28 39,7	0	12 0
6	1,9	39,6	1,9	24
12	3,7	39,4	3,7	18
18	5,5	39,2	5,5	12
24	7,3	38,9	7,3	6
1 0	9,1	23 28 38,4	9,1	11 0
6	10,6	37,8	10,6	24
12	12,1	37,2	12,1	18
18	13,5	36,5	13,5	12
24	14,7	35,7	14,7	6
2 0	15,7	23 28 34,5	15,7	10 0
6	16,5	33,9	16,5	24
12	17,2	33,0	17,2	18
18	17,7	32,0	17,7	12
24	18,0	31,0	18,0	6
3 0	18,1	23 28 30,0	18,1	9 0
6	18,0	29,0	18,0	24
12	17,7	28,0	17,7	18
18	17,4	27,0	17,2	12
24	16,5	26,1	16,5	6
4 0	15,7	23 28 25,1	15,7	8 0
6	14,7	24,3	14,7	24
12	13,5	23,5	13,5	18
18	12,1	22,8	12,1	12
24	10,6	22,2	10,6	6
5 0	9,1	23 28 21,6	9,1	7 0
6	7,3	21,1	7,3	24
12	5,5	20,8	5,5	18
18	3,7	20,6	3,7	12
24	1,9	20,4	1,9	6
6 0	0	23 28 20,3	0	6 0
	—		+	
Lon. ☊	Equ. æq. Pts.	Ecliptic Obliquity.	Equ. æq. Pts.	Lon. ☊

Add to or sub. from the compᵈ Lon. for the true Lon. of ☉, ☽, or ✳.

1. *Horizontal Parallax* of the MOON, in the *Syzygies*, under the Equator, for the middle State of the ☽'s Orbit, in *Syzygies*.

Argument. Corrected Anom. of Moon.

2. Eq. of m. to *tr*. H. Pa. in Syz.

2. ☽ à ☉ c. — ☽ An. c

3. Eqⁿ of the ☽'s in *Syzigies* to he Paˣ. out of *Syz*

Ar. ☽ à Sun tr

Arg. prop.	S.	S.	S.	S.	S.	S.	0	1	2						
	0	1	2	3	4	5	—	—	—	S.	S.	S.	S.	S.	S.
	M.P.	M.Pa.	M. Pa	M. Pa	M. Pa	M, Pa	6	7	8	0	1	2	3	4	5
	+	+	+	+	+	+	+	+	+	+	∓	—	—	∓	+
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″
0	54 10	54 30	55 29	56 58	58 37	59 56	38	33	19	25	12	14	27	13	14
1	54 10	54 32	55 32	57 1	58 40	59 58	38	32	18	25	12	14	27	12	14
2	54 10	54 33	55 34	57 5	58 43	60 0	38	32	18	25	11	15	27	12	15
3	54 10	54 35	55 37	57 8	58 46	60 2	38	32	17	25	10	16	27	11	16
4	54 11	54 36	55 39	57 12	58 49	60 4	38	31	17	25	9	16	27	10	17
5	54 11	54 38	55 42	57 15	58 52	60 5	38	31	16	25	8	17	27	9	18
6	54 11	54 39	55 45	57 19	58 55	60 7	38	31	16	25	8	18	27	8	18
7	54 11	54 41	55 47	57 22	58 58	60 8	37	30	15	24	7	18	26	7	19
8	54 11	54 42	55 50	57 25	59 1	60 10	37	30	14	24	6	19	26	6	20
9	54 12	54 44	55 53	57 29	59 4	60 11	37	30	14	24	5	20	26	5	20
10	54 12	54 46	55 56	57 32	59 7	60 13	37	29	13	24	4	21	25	4	21
11	54 12	54 48	55 59	57 35	59 10	60 14	37	29	13	24	3	21	25	3	22
12	54 13	54 49	56 2	57 38	59 13	60 15	37	28	12	23	2	22	24	2	22
13	54 13	54 51	56 5	57 42	59 16	60 16	37	28	11	23	1	23	24	1	23
14	54 14	54 53	56 8	57 45	59 18	60 17	36	28	11	23	0	23	23	0	23
15	54 15	54 55	56 11	57 48	59 21	60 18	36	27	10	23	1	24	23	1	24
16	54 15	54 57	56 14	57 51	59 23	60 18	36	27	9	22	1	24	22	2	24
17	54 16	54 59	56 17	57 55	59 26	60 19	36	26	9	22	2	25	22	3	2
18	54 17	55 1	56 20	57 58	59 29	60 20	36	26	8	21	3	25	21	4	2
19	54 18	55 3	56 23	58 1	59 31	60 21	35	25	7	20	4	25	21	5	2
20	54 19	55 5	56 26	58 4	59 34	60 22	35	25	6	19	5	26	20	6	26
21	54 20	55 7	56 29	58 8	59 36	60 22	35	24	6	19	6	26	19	7	26
22	54 21	55 9	56 32	58 11	59 39	60 23	35	24	5	18	7	26	19	7	26
23	54 22	55 12	56 36	58 14	59 41	60 24	34	23	4	17	8	26	18	8	26
24	54 23	55 14	56 39	58 18	59 44	60 25	34	23	4	17	9	26	17	9	27
25	54 24	55 17	56 42	58 21	59 46	60 25	34	22	3	16	10	27	16	10	27
26	54 25	55 19	56 45	58 24	59 48	60 26	34	21	3	15	10	27	16	11	27
27	54 26	55 22	56 49	58 28	59 50	60 26	33	21	2	15	11	27	15	11	28
28	54 28	55 24	56 52	58 31	59 52	60 26	33	20	1	14	12	27	14	12	28
29	54 29	55 27	56 55	58 34	59 54	60 26	33	20	1	13	13	27	13	13	28
30	54 30	55 29	56 58	58 37	59 56	60 26	33	19	0	12	14	27	13	14	28
Arg. prop.	+	+	+	+	+	+	—	—	—	+	±	—	—	∓	+
	M.Pa.	M. Pa	M. Pa	M. Pa	M. Pa	M. Pa	11	10	9	11	10	9	8	7	
	11	10	9	8	7	6	+	+	+	S.	S.	S.	S.	S.	S.
	S.	S.	S.	S.	S.	S.	5	4	3	Argument as ab					

Argument as above.

Ar. cor. Ev

N. B. The Hor. Par. ☽ *adds to the* ☽*'s Ap. for her true Alt. and ſubtracts fr. her ap. Diſt. from Vertex, for tr. Diſt. and the contrary.*

N. B. The Æquatorial *Hor. is to* ☽*'s appa. Diam. as* 55 *to*

iam. fr. Eq. arallax.			
aral.		Diam.	
′	″	′	″
4	5	29	30
4	16	29	36
4	27	29	42
4	38	29	48
4	59	29	54
5	0	30	0
5	11	30	6
5	22	30	12
5	33	30	18
5	44	30	24
5	55	30	30
6	6	30	36
6	17	30	42
6	28	30	48
56	39	30	54
6	50	31	0
57	1	31	6
57	12	31	12
57	23	31	18
57	34	31	24
57	45	31	30
57	56	31	36
58	7	31	42
58	18	31	48
58	29	31	54
58	40	32	0
58	51	32	6
59	2	32	12
59	13	32	18
59	24	32	24
59	35	32	30
59	46	32	36
59	57	32	42
60	8	32	48
60	19	32	54
60	30	33	0
60	41	33	6
60	52	33	12
61	3	33	18
61	14	33	24
61	25	33	30

N. B. Hor. Par. is to ☽'s app^{t} Diam. as 55 to 30, or 1 to ,5454.

MOON'S ÆQUATIONS.

No.	Arguments and Maxima.	Transformations and Improvements.	See our Aſtronomy.
	For the MOON'S PLACE.		
1	Sun m. An.	. . ſame, Sir I. Newton	
A	+ 11′ 20″ . . 91°	+ 11′ 50″ . . . 90°	+ 11′ 22″ D.C. 1.
2	. . ☽ à Sun + Sun A	M. Ev. + ☽ A + Sun A	{ ap. 25′ 45″ } 11
s	− 0′ 54″ . . . 90°	or ☽ à ☉ + ☽ á ☉ Ap. or	{ ☊ 9 24 }
3	. ☽ à Sun − Sun A	M. Ev. + ☽ A − Sun A	
s	− 1′ 2″		*Halley's* . . . . . 4.
4	2. ☽ à Sun + Snn A	M. Evec. + Sun An.	or ☽ á ☉ + ☽ Ap. á
s	+ 1′ 48″ − ☽ A	+ 2′ 25″ . . . 90°	D Cowper [☉ ap. 5.
5	2. ☽ à Sun − Sun A	M. Evec. − Sun A.	D. C. . . . . 6.
s	+ 1′ 12″ − ☽ A	+ 1′ 12″	
6	2. ☽ à Sun + ☽ A	M. Evec. + 2. ☽ A.	D. C. . . . . . 7.
s	+ 1′ 30″ . . .	+ 1′ 40″	
7	2. ☽ à ☊ − ☽ A	M. Evec. + 2. Sun á ☊	D. C. ; . . . . 4.
s	+ 0′ 58″	+ 1′ 0″	or ☽ á ☊ + ☽ Ap.
8	☽ A − Sun A	☽ á ☉ + ☉ Ap. á ☽ Ap.	[á ☊.
s	+ 0′ 40″		
9	☊ à Sun	Sun á ☊. 2d. Sem. An.	. . . . 3.
s	+ 0′ 47″ . . . 45°	− 0′ 47″ . . . 45°	Sir Iſ. N^{n}. D. C.
10	☽ à Sun − ☽ A	☽ Ap. á Sun reverſed	☉ á ☽ Ap. 1. s. . 2.
s	+ 3′ 45″ . . .	− 3′ 45″ Sir I. Newton	− 6′ 3″ D. C.
11	☽ cor^{d} A.	☽ eq^{d} − ☽ Ap. req^{d}.	Sir I. N. 4th 8.
A	− 6° 18′ 44″ . 94°	D. C. 6° 18′ 39″	or Centr. Æq.
12	2. ☽ à Sun − ☽ A.	Correct Evection	☽ á ☉ + ☽ ap. à ☉
A	− 1° 20′ 43″ cor^{d}. [90°	☽ A. cor. − 2. ☉ á ☽ ap.	D. Cowper. [9.
		− 1° 20′ 41″ [corr^{d}.	
13	☽ eq^{d} à Sun true	Variation, 1. and 2d.	D. C. , ... 10.
+	39′ 3″ } 1^{s} 14°	falcated ☽ } Sir Iſa. N.	+ 36′ 48″ } fal.
−	41 41 } 4 14.	Gibbons } 6 and 7.	− 39 24 } Gib.
14	☽ à ☊	Reduction	
s	− 6′ 57″	at a Mean Inc^{n}.	☽'s Orb.
0	For the MOON'S LATITUDE.		
1	☽ á ☊	Max. 59′ 8″ . 6^{s} 0°	Annual Æq.
2	2. ☽ á ☉ − ☽ á ☊	. . . . 8 50 . . 1 14	or ☽ á ☉ + ☊ á ☉
0	For the MOON'S PARALLAXES.		
1	Tr. An. ☽	Max. + 60′ 26″ . 6^{s}	Annual Æq.
2	2. ☽ á ☉ − ☽ An. [cor^{d}.	Correct Evection, or	☽ á ☉ + ☽ ap. á ☉
		Max. ∓ 0′ 38″	at 0^{s} 6 . . . .
3	Moon á Sun true	Max. − 0′ 27″	at 3^{s} . . . . .

N. B. The Mean Evection ± Æq. Moon Center = correct Evection.

Mean Evection − 2 ☽ + 2 ☉ + ☽ An. plus any Argument = the Argument transformed to Mean Evection, becauſe 2 ☽ − 2 ☉ − ☽ An. = Mean Evection = Moon's m. A. − 2. ☉ â Moon's Ap.

N. B. A ſignifies Anom. Ap. Apogee; A alſo Annual Æquation; s, ſemiannual; cor^{d}. corrected, among the Columns.

PERPETUAL
TIME-TABLES;
OR
General RULES for CHRONOLOGISTS, HISTORIANS, MEMORANDUM-BOOK-MAKERS, TRAVELLERS, and NAVIGATORS.

Determining, *at Sight*, the POINTS of TIME, for any one *Seaſon* or YEAR, *paſt*, *preſent*, or *to come*.

Particularly uſeful for all Perſons writing ALMANACS for the STATIONERS COMPANY.

Which TABLES (of themſelves) are no more a CALENDAR, or ALMANAC, ſerving for any one *Seaſon*, or *Time*, than the Timber cut out in a *Dock-Yard* for Building, but not united into Form, is a SHIP; or no *more ſo* than Timber framed for Building is a *Houſe*; or than RULES for making ALMANACS is an ALMANAC. And therefore theſe TABLES or RULES are not ſubject to *Stamp-duty*; ſince all *Rules of Art*, for making any *Performance*, are allowable, without Reſtraint: For, without Rules to make them, there could be no *Almanacks*.

This *Truth* we think ourſelves obliged to explain, as the *Stamp-Office* has a Right, by Act of Parliament, to charge a Duty on what is *literally and truly* an ALMANAC for any one Time, or Number of Times; or on *what* **chiefly** *ſerves that Purpoſe, for any one Time, or Number of Times*, to come: Since every printed *Figure* or *Letter*, or even the *Paper* of any Book of Chronology, and eſpecially all *chronological Rules*, may *partly* ſerve that Purpoſe. In which Senſe of **chiefly** *ſerving that Purpoſe* of an ALMANAC, for any one Time, or particular Number of Times, for the Year or Seaſon, or Years or Seaſons, preſent, or to come, the **Act takes Place**, and no further.

But, our *Tables* conſiſt of *general* RULES, not ſerving *chiefly*, or made for any *one* Time, or Number of Times, or Years, preſent or to come, but *generally* (and not *chiefly*) ſerve, for all *paſt* and *future* TIME, and for no Year or Seaſon, or Years and Seaſons, in particular: And of which Time, in general, as *infinite Duration*, no particular Year or Years, Seaſon or Seaſons, can be underſtood. So that our *Perpetual Tables* are only ſubſervient (like all other *general Rules*) to the *general*, and therein particular, Uſes for which *they were wanted and deſign'd*.

> For *Time*, though in *Eternity* applied
> To Motion, meaſures all Things durable
> By preſent, paſt, and future. —— MILTON b. V. l. 580.

RULES for CHRONOLOGISTS, HISTORIANS, &c.

RULES *for finding the Moveable* FEASTS *aud* HOLIDAYS.

EASTER, on which the Reſt depends, is always the *1ſt Sunday* after the firſt *F. Moon*, happening upon, or next after, *March* 21; and if the F. M. is on a *Sunday*, *Eaſter* is the *Sunday* following.

Septuageſima S.	9	Weeks	before *Eaſter.*	*Rogation Sunday*	5 Weeks	after *Eaſter.*
Sexageſima	8			*Aſcenſion-day*	40 Days	
Quinquageſima	7			*Whitſunday*	7 Weeks	
Quadrageſima	6			*Trinity Sunday*	8 Weeks	

ADVENT SUNDAY the *neareſt Sund.* to the Feaſt of St. *Andrew.*

All the moveable and fixed FEASTS *obſerved in the Church of* England.

All Sundays	St. Mark Ev.	St. Barth. Ap.	St. Thomas Ap.
Circumciſion	St. Ph. & Ja. Ap.	St. Matth. Ap.	Nat. of Chriſt.
Epiphany	Aſcenſ. J. Ch.	St. Mic. & all A.	St. Stephen Mar.
Conv. St. Paul	St. Barnabas.	St. Luke Ev.	St. John Evan.
Purif. V. M.	Nat. St. J. Bap.	St. Sim. & Ju. A.	Holy Innocents.
St. Matthias	St. Peter Ap.	All Saints.	Mo. & Tu. in Eaſt.
Annun. V. M.	St. James Ap.	St. Andrew A.	Mo. & Tu. in Whi.

VIGILS *and* FASTS.

Eve or Vigil before	*Nat. Chr.*	*Pentecoſt*	*St. James*	*St. Andrew*
	Purif.	*St. Matthias*	*St. Bartholomew*	*St. Thomas*
	Eaſter Day	*St. John Bap.*	*St. Matthew*	*All Saints.*
	Aſcenſion	*St. Peter*	*St. Sim. & Jude*	

N. B. When a *Feaſt-day* falls on a *Monday*, the Vigil or Faſt is kept on the *Saturday-Eve* preceding, and not on that of the *Sunday*, which is a *Feaſt-day.*

DAYS *of* FASTING *and* ABSTINENCE.

I. Forty Days in Lent.

II. The Ember Days, at the 4 SEASONS, on the *Wedneſday Friday* and *Saturday* after the	*1ſt Sunday in Lent* *Feaſt of Pentecoſt* *September the 14th* *December the 13th.*

III. The 3 *Rogation-days, Monday, Tueſday, Wedneſday*, before Chriſt's Aſcenſion or *Holy-Thurſday.*

IV. All the *Fridays* in the Year, except *Chriſtmas-day.*

Solemn Days *kept, for which particular* Church-Service *is appointed.*

I. *November* 5, in Memory of the *Popiſh Plot.*

II. *January* 30, in Memory of the Martyrdom of K. *Charles* I.

III. *May* 29, in Mem. of the Birth and Return of K. *Charles* II.

Hil. T. b. Jan. 23. ends Feb. 12		*Michaelmas T. beg. Nov.* 6, *ends Nov.* 29		
1 Return	*Jan.* 20	1 Return	*Nov.* 3	
2 Return	27	2 Return	12	
3 Return	*Feb.* 3	3 Return	18	
4 Return	9	4 Return	25	
Eaſter Term.		*Trinity Term.*		
1 Ret. 14 Days	from Eaſter *excluſive.*	1 Ret. Morrow of Hol. Trin.		
2 Ret. 21		2 Ret. 7 Days		Fr. Hol. Tr. *excluſive.*
3 Ret. 28		3 Ret. 14		
4 Ret. 35		4 Ret. 21		
5 Ret. on Morrow of Aſcen.				

PERPETUAL

PERPETUAL TIME-TABLES: Or, General RULES for CHRONOLOGIST HISTORIANS, &c.

MOVEABLE FEASTS for ever, according to the Fall of EASTER, N. S.

Eaſter Sund.	*Septuageſ. Sund.*	*Aſh Wed.*	*Roga. Sund.*	*Aſcenſion Sund.*	*Whitſund.*	*Adv. Sund.*
Mar. 22	Ja. 18	Feb. 4	Ap 26	Ap 30	May 10	No. 29
23	19	5	27	May 1	11	30
24	20	6	28	2	12	Dec. 1
25	21	7	29	3	13	2
26	22	8	30	4	14	3
27	23	9	May 1	5	15	No. 27
28	24	10	2	6	16	28
29	25	11	3	7	17	29
30	26	12	4	8	18	30
31	27	13	5	9	19	Dec. 1
Apr. 1	28	14	6	10	20	2
2	29	15	7	11	21	3
3	30	16	8	12	22	No. 27
4	31	17	9	13	23	28
5	Feb. 1	18	10	14	24	29
6	2	19	11	15	25	30
7	3	20	12	16	26	Dec. 1
8	4	21	13	17	27	2
9	5	22	14	18	28	3
10	6	23	15	19	29	No. 27
11	7	24	16	20	30	28
12	8	25	17	21	31	29
13	9	26	18	22	June 1	30
14	10	27	19	23	2	Dec. 1
15	11	28	20	24	3	2
16	12	Mar 1	21	25	4	3
17	13	2	22	26	5	No. 27
18	14	3	23	27	6	28
19	15	4	24	28	7	29
20	16	5	25	29	8	30
21	17	6	26	30	9	Dec. 1
22	18	7	27	31	10	2
23	19	8	28	Jun. 1	11	3
24	20	9	29	2	12	No. 27
25	21	10	30	3	13	28

N. B. When any *Feaſts* fall in *Jan.* or *Feb.* in *Leap-Year*, ſuch Feaſts muſt be taken a *Day later* than by Table.

To find the Golden Number for any Year?

Add 1 to the Date, and divide the Sum by 19, what remains is the Golden Number required.

When 0 remains 19 is the Golden Number.

Or ſee *Palladium*, 1752, Tables, p. 70, for

MOVEABLE TERMS for eve accorg to the Fall of *Eaſt*

Eaſt. Term begins.	*ends.*	*Trinity Term begins.*	*ends.*
Ap. 8	May 4	May 22	Jun. 1
9	5	23	1
10	6	24	1
11	7	25	1
12	8	26	1
13	9	27	1
14	10	28	1
15	11	29	1
16	12	30	1
17	13	31	1
18	14	Jun. 1	2
19	15	2	2
20	16	3	2
21	17	4	2
22	18	5	2
23	19	6	2
24	20	7	2
25	21	8	2
26	22	9	2
27	23	10	2
28	24	11	3
29	25	12	July
30	26	13	
May 1	27	14	
2	28	15	
3	29	16	
4	30	17	
5	31	18	
6	Jun. 1	19	
7	2	20	
8	3	21	1
9	4	22	1
10	5	23	1
11	6	24	1
12	7	25	1

N. B. Eaſter-Term begin 17 Days, and ends 43 Day after *Eaſter*. *Trinity*-Term begins 5 Days, and ends 2 Days after *Trinity*. There fore *Eaſter*-Term continues 2 and *Trinity* 20, incluſive.

See p. 8 *Pal.* 1758, *f*

PERPETUAL TIME-TABLES: Or, General RULES for CHRONOLOGISTS, HISTORIANS, &c.

MOVEABLE FEASTS from 1758 to 1800, N. S.

Years of *Chriſt.*	G. N°	Dom Let. N.S.	Dom Let. O.S.	*Septuageſima Sunday.*	*Aſh Wedneſ.*	*Eaſter Sunday.*	*Rogat. Sunday.*	*Aſcenſ. Day.*	*Whit. Sunday.*	*Advent Sunday.*	*Epact.*
1758	11	A	D	Jan. 22	Feb. 8	Mar. 26	Apr. 30	May 14	May 11	Dec. 3	20
1759	12	G	C	Feb. 11	28	Apr. 15	May 20	24	Jun. 3	2	1
B.1760	13	FE	BA	3	20	6	11	15	May 25	Nov. 30	12
1761	14	D	G	Jan. 18	4	Mar. 22	Apr. 26	Apr. 30	10	29	23
1762	15	C	F	Feb. 7	24	Apr. 11	May 16	May 2	30	28	4
1763	16	B	E	Jan. 30	16	3	8	12	22	27	15
B.1764	17	AG	DC	Feb. 19	Mar. 7	22	27	31	Jun. 10	Dec. 2	26
1765	18	F	B	3	Feb. 20	7	12	16	May 26	1	7
1766	19	E	A	Jan. 20	12	Mar. 30	4	8	18	Nov. 30	18
1767	1	D	G	Feb. 15	Mar. 4	Apr. 19	24	28	Jun. 7	29	29
B.1768	2	CB	FE	Jan. 31	Feb. 17	3	8	12	May 22	27	11
1769	3	A	D	22	8	Mar. 20	Apr. 30	4	14	Dec. 3	22
1770	4	G	C	Feb. 11	28	Apr. 15	May 20	24	Jun. 3	2	3
1771	5	F	B	Jan. 27	13	Mar. 31	5	9	May 19	1	14
B.1772	6	ED	AG	Feb. 16	Mar. 4	Apr. 19	24	28	Jun. 7	Nov. 29	25
1773	7	C	F	7	Feb. 24	11	16	20	May 30	28	6
1774	8	B	E	Jan. 30	16	3	8	12	22	27	17
1775	9	A	D	Feb. 12	Mar. 1	16	21	25	Jun. 4	Dec. 3	28
B.1776	10	GF	CB	4	Feb. 21	7	12	16	May 26	1	9
1777	11	E	A	Jan. 20	12	Mar. 30	4	8	18	Nov. 30	20
1778	12	D	G	Feb. 15	Mar. 4	Apr. 19	24	28	Jun. 7	29	1
1779	13	C	F	Jan. 31	Feb. 17	4	9	13	May 23	28	12
B.1780	14	BA	ED	23	9	Mar. 26	Apr. 30	4	14	Dec. 3	23
1781	15	G	C	Feb. 11	28	Apr. 15	May 20	24	Jun. 5	2	4
1782	16	F	B	Jan. 27	13	Mar. 31	5	9	May 19	1	15
1783	17	E	A	Feb. 16	Mar. 5	Apr. 20	25	29	Jun. 8	Nov. 30	26
B.1784	18	DC	GF	8	Feb. 25	11	16	20	May 30	28	7
1785	19	B	E	Jan. 23	9	Mar. 27	1	5	15	27	18
1786	1	A	D	Feb. 12	Mar. 1	Apr. 16	21	25	Jun. 4	Dec. 3	0
1787	2	G	C	4	Feb. 21	8	13	17	May 27	2	11
B.1788	3	FE	BA	Jan. 20	6	Mar. 23	Apr. 27	1	11	Nov. 30	22
1789	4	D	G	Feb. 8	25	Apr. 12	May 17	21	31	29	3
1790	5	C	F	Jan. 31	17	4	9	13	23	28	14
1791	6	B	E	Feb. 20	Mar. 9	24	29	Jun. 2	Jun. 12	27	25
B.1792	7	AG	DC	5	Feb. 22	8	13	May 17	May 27	Dec. 2	6
1793	8	F	B	Jan. 27	13	Mar. 31	5	9	19	1	17
1794	9	E	A	Feb. 16	Mar. 5	Apr. 20	25	29	Jun. 8	Nov. 30	28
1795	10	D	G	1	Feb. 18	5	10	14	May 24	29	9
B.1796	11	CB	FE	Jan. 24	10	Mar. 27	1	5	15	27	20
1797	12	A	D	Feb. 12	Mar. 1	Apr. 16	21	25	Jun. 4	Dec. 3	1
1798	13	G	C	Feb. 4	Feb. 21	8	13	17	May 27		12
1799	14	F	B	Jan. 20	6	Mar. 24	Apr. 28	2	12	2	23
1800	15	E	AG	Feb. [illegible]	26	Apr. 13	May 18	22	Jun. 1	Nov. 30	4

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

JANUARY xxxi Days.

G	F	E	D	C	B	A	Days	*Fixed Feaſts, Remarkable Days, &c. according to New Stile.*
m	t	w	th	f	ſ	S	1	CIRCUMCISION. Day Br. 5h 59m. T.e.
t	w	th	f	ſ	S	m	2	Sun riſes 8 4, ſets 3 56, *Lond.* [6h 1m.
w	th	f	ſ	S	m	t	3	
th	f	ſ	S	m	t	w	4	Sir *Iſaac Newton* born, 1643, N. S.
f	ſ	S	m	t	w	th	5	Old Chriſtmas-day.
ſ	S	m	t	w	th	f	6	EPIPHANY.
S	m	t	w	th	f	ſ	7	Sun ſlow of Clocks 7m 10s.
m	t	w	th	f	ſ	S	8	Lucian.
t	w	th	f	ſ	S	m	9	
w	th	f	ſ	S	m	t	10	Princeſs Elizabeth born, 1770.
th	f	ſ	S	m	t	w	11	Day Break 5 22. Tw. ends 6 8.
f	ſ	S	m	t	w	th	12	Sun riſes 7 56, ſets 4 5.
ſ	S	m	t	w	th	f	13	St. *Hillary*, Biſhop of Poictiers.
S	m	t	w	th	f	ſ	14	Ox. & Cam. Terms begin.
m	t	w	th	f	ſ	S	15	Exchequer opens.
t	w	th	f	ſ	S	m	16	
w	th	f	ſ	S	m	t	17	Old Twelfth-day. Sun ſl. of Cl. 10m 56s.
th	f	ſ	S	m	t	w	18	Priſca.
f	ſ	S	m	t	w	th	19	Sun enters ♒, Noon, 1758.
ſ	S	m	t	w	th	f	20	*Fabian.*
S	m	t	w	th	f	ſ	21	Agnes. Day Br. 5 43. Tw. e. 6 17.
m	t	w	th	f	ſ	S	22	Vincent. Sun riſes 7 44, ſets 4 16.
t	w	th	f	ſ	S	m	23	Hillary Term begins.
w	th	f	ſ	S	m	t	24	
th	f	ſ	S	m	t	w	25	CONVERSION OF ST. PAUL.
f	ſ	S	m	t	w	th	26	
ſ	S	m	t	w	th	f	27	Sun ſlow of Clocks 12m 29s.
S	m	t	w	th	f	ſ	28	
m	t	w	th	f	ſ	S	29	
t	w	th	f	ſ	S	m	30	K. CHA. II. MART. 1648-9, O. S. 12m
w	th	f	ſ	S	m	t	31	[paſt One.

N. B. Oxf. & Cam. Terms end Thurſ. bef. Whit. — Trin. Col. Election on Trin. Mond.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q
	●	☽	○	☾		●	☽	○	☾		●	☽	○	☾
1	30	7	15	23	7	24	1 31	9	17	13	17	25	3	10
2	19	26	4	12	8	12	20	27	5	14	6	14	21	29
3	8	16	23	1 31	9	1 31	9	16	24	15	25	3	11	18
4	26	4	11	19	10	20	28	6	13	16	14	21	29	6
5	16	23	1 31	8	11	10	17	25	3	17	3	11	18	25
6	5	12	20	27	12	28	6	13	20	18	22	29	7	15
										19	11	19	26	4

N. B. Under the Dom. Letter for O. or N. Stile, againſt the Day of the Month ſtands the Week-Day Letter correſpondent.

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

FEBRUARY xxviii or xxix Days.

N. B. Oxf. & Cam. Terms beg. Wed. af. Tr. Sund. — Trin. Col. Election Mond. af. Tr. S.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
th	f	ſ	S	m	t	w	1	Sun riſes 7 26, ſets 4 34, *London.*
f	ſ	S	m	t	w	th	2	PURIF. V. MARY, or Candlemas-day.
ſ	S	m	t	w	th	f	3	Blaize, Biſhop.
S	m	t	w	th	f	ſ	4	
m	t	w	th	f	ſ	S	5	Agatha.
t	w	th	f	ſ	S	m	6	
w	th	f	ſ	S	m	t	7	Sun ſlow of Clocks 14m 43s.
th	f	ſ	S	m	t	w	8	
f	ſ	S	m	t	w	th	9	
ſ	S	m	t	w	th	f	10	*Dies Scolaſtica*, at Oxford.
S	m	t	w	th	f	ſ	11	Day Br. 5 12. Tw. ends 6 48.
m	t	w	th	f	ſ	S	12	Hillary T. ends. Sun r. 7 8. ſ. 4 52.
t	w	th	f	ſ	S	m	13	Old Candlemas-day.
w	th	f	ſ	S	m	t	14	*Valentine*, a Biſhop of Rome & M.
th	f	ſ	S	m	t	w	15	
f	ſ	S	m	t	w	th	16	
ſ	S	m	t	w	th	f	17	Sun ſlow of Clocks 14m 29s.
S	m	t	w	th	f	ſ	18	Sun in ♓ 21′ Noon, 1756.
m	t	w	th	f	ſ	S	19	
t	w	th	f	ſ	S	m	20	
w	th	f	ſ	S	m	t	21	Day Br. 4 55. Twil. ends 7 5.
th	f	ſ	S	m	t	w	22	Sun riſes 6 49, ſets 5 11.
f	ſ	S	m	t	w	th	23	
ſ	S	m	t	w	th	f	24	St. MATTHIAS.
S	m	t	w	th	f	ſ	25	
m	t	w	th	f	ſ	S	26	
t	w	th	f	ſ	S	m	27	Sun ſlow of Clocks 13m 4s.
w	th	f	ſ	S	m	t	28	Hare-Hunting goes out.
th	f	ſ	S	m	t	w	29	Leap-Year.
								Camb. Com. for B. A. the Day after Aſh-Wedneſday.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾
1	28	6	13	21	7	22	—	8	15	13	16	23	1	9
2	17	25	3	10	8	11	18	25	3	14	5	13	20	27
3	7	14	22	29	9	—	8	15	23	15	24	2	9	17
4	25	3	10	17	10	19	27	4	12	16	12	20	27	5
5	14	22	29	7	11	8	16	23	1	17	2	9	16	24
6	3	11	18	26	12	26	4	11	19	18	20	8	6	13
										19	10	18	25	3

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

MARCH xxxi Days.

	G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
	th	f	ſ	S	m	t	w	1	St. DAVID, Abp. D.b. 4 41. T.e. 7 20.
	f	ſ	S	m	t	w	th	2	Cedde or Chad. B. Sun r. 6 34. ſ. 5 27.
	ſ	S	m	t	w	th	f	3	
	S	m	t	w	th	f	ſ	4	Sun ſlow of Clocks 12m 1s.
	m	t	w	th	f	ſ	S	5	*Prſſe Mary of Heſſe b.* 1722.
	t	w	th	f	ſ	S	m	6	
	w	th	f	ſ	S	m	t	7	Perpetua Maurit. Mart.
	th	f	ſ	S	m	t	w	8	*Camb. latter Act Thurſ. af.* 4 *S. in*
	f	ſ	S	m	t	w	th	9	*Lent.*
	ſ	S	m	t	w	th	f	10	Day br. 4 19. Twil. ends 7 41.
	S	m	t	w	th	f	ſ	11	Sun riſes 6 14, ſets 5 47.
	m	t	w	th	f	ſ	S	12	Gregory.
	t	w	th	f	ſ	S	m	13	
	w	th	f	ſ	S	m	t	14	Sun ſlow of Clocks 9m 21s.
	th	f	ſ	S	m	t	w	15	*Oxf. & Cam. Terms end the Day bef.*
	f	ſ	S	m	t	w	th	16	*Palm. S.*
	ſ	S	m	t	w	th	f	17	St. Patrick, a Biſhop of Ireland.
	S	m	t	w	th	f	ſ	18	Ed. K. of Weſt Sax.
	m	t	w	th	f	ſ	S	19	Prſſe Louiſa-Ann b. 1749. Joſeph,
	t	w	th	f	ſ	S	m	20	Cuthbert. Equal Day and Night.
14	w	th	f	ſ	S	m	t	21	Benedict Abbot. D.b. 3 57. T.e. 8 4.
3	th	f	ſ	S	m	t	w	22	Sun riſes 5 54, ſets 6 7.
	f	ſ	S	m	t	w	th	23	Sun in ♈ 20′ on 20 D. Noon, 1756.
11	ſ	S	m	t	w	th	f	24	Sun ſlow of Clocks 6m 18s.
	S	m	t	w	th	f	ſ	25	LADY-DAY. ANNUNCIATION B.
19	m	t	w	th	f	ſ	S	26	[V.M. *Pr. Edward b.* 1739.
8	t	w	th	f	ſ	S	m	27	*N. B. According to* Gregorian *Rec-*
	w	th	f	ſ	S	m	t	28	*koning, the Golden Numbers to the Left*
16	th	f	ſ	S	m	t	w	29	*of all, ſhew the Times of the Full*
5	f	ſ	S	m	t	w	th	30	*Moons preceding* Eaſter-Sunday, *till*
	ſ	S	m	t	w	th	f	31	1900.

N. B. Corpus Chriſti Th. af. Tr. S. — Cam. Commencement 1ſt Tueſd. July.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. Nº.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. Nº.	N M ●	F Q ☽	F M ○	L Q ☾
1	30	8	15	23	7	23	1 30	8	16	13	17	25	3	10
2	19	27	5	12	8	12	20	27	5	14	7	13	22	29
3	7	15	22	30	9	1 31	9	16	24	15	24	2	10	17
4	26	4	11	19	10	21	28	6	14	16	14	21	29	6
5	16	23	1 31	8	11	9	17	24	1 31	17	3	11	18	26
6	5	13	20	28	12	28	6	13	21	18	22	30	7	15
										19	10	18	25	3

PERPETUAL TIME-TABLES: Or General Rules for CHRONOLOGISTS, HISTORIANS, &c.

APRIL XXX Days.

	G	F	E	D	C	B	A	Days	*Fixed Feasts, Remarkable Days, &c. according to New Stile.*
13	S	m	t	w	th	f	ſ	1	All Fools-day. D. b. 3 31. T.e. 8 29.
2	m	t	w	th	f	ſ	S	2	Sun riſes 5 32, ſets 6 28.
	t	w	th	f	ſ	S	m	3	Richard B. Chich.
10	w	th	f	ſ	S	m	t	4	S. Ambroſe. Sun ſl. of Cl. 2m 55s.
	th	f	ſ	S	m	t	w	5	Old Lady-day.
18	f	ſ	S	m	t	w	th	6	*Oxf. & Cam. Term beg. Wed. af. 1ſt*
7	ſ	S	m	t	w	th	f	7	*S. aft. Eaſter.*
	S	m	t	w	th	f	ſ	8	
15	m	t	w	th	f	ſ	S	9	
4	t	w	th	f	ſ	S	m	10	D. br. 5 34. T. e. 8 57.
	w	th	f	ſ	S	m	t	11	Sun riſes 5 13, ſets 6 48.
12	th	f	ſ	S	m	t	w	12	*Eaſter Ter. beg.* 17 *Days af. Eaſter,*
1	f	ſ	S	m	t	w	th	13	*ends in 27 Days.*
	ſ	S	m	t	w	th	f	14	Sun ſlow of Clocks 0m 16s.
9	S	m	t	w	th	f	ſ	15	Sun and Clocks together.
	m	t	w	th	f	ſ	S	16	*Weſtminſter Election Day af.* 4 *S. af.*
17	t	w	th	f	ſ	S	m	17	*Eaſter.*
6	w	th	f	ſ	S	m	t	18	[*in* 20 *Days.*
	th	f	ſ	S	m	t	w	19	Alphege. *Tr. T. beg. 5 Ds. aft. Ea. ends*
	f	ſ	S	m	t	w	th	20	Sun in ♉ 46′ Noon, 1756.
	ſ	S	m	t	w	th	f	21	Day Br. 2 57. Tw. ends 9 24.
	S	m	t	w	th	f	ſ	22	Sun riſes 4 54, ſets 7 7.
	m	t	w	th	f	ſ	S	23	S. George of Cappadocia, Patr. Engd
	t	w	th	f	ſ	S	m	24	Sun faſt of Clocks 2m 6s.
	w	th	f	ſ	S	m	t	25	St. Mark, Evangeliſt.
	th	f	ſ	S	m	t	w	26	**DUKE OF CUMBERLAND**, Captain
	f	ſ	S	m	t	w	th	27	Vict. of Culloden. [General b. 1721.
	ſ	S	m	t	w	th	f	28	*N. B. According to the Greg. Recon-*
	S	m	t	w	th	f	ſ	29	*ing, the Gold. Nos. to the Left of all,*
	m	t	w	th	f	ſ	S	30	*ſhew the Times of the Full Moons pre-*
									ceding Eaſter Sunday, *till* 1900.

N. B. Oxf. Aft. 7 Days fr. Cam. Commencement. —— Baliol. Col. Election &c. bef. St. And.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q	F M ☽	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾
1	28	6	13	21	7	22	29	7	14	13	16	23	1 30	8
2	18	25	3	11	8	11	19	26	3	14	5	13	20	28
3	6	14	21	28	9	30	8	5	23	15	23	1 30	8	16
4	25	3	10	18	10	19	27	4	12	16	13	20	27	5
5	14	22	29	7	11	7	15	22	30	17	2	9	17	24
6	4	11	18	26	12	27	4	12	19	18	21	28	6	14
										19	0	17	24	2

N. B. The Rules for variable Days are in the Body of Mths. fr. Jan. to Apr. and then in Succeſſion fr. Jan. to Apr. on the Sides.

PERPETUAL TIME-TABLES: Or General Rules for CHRONOLOGISTS, HISTORIANS, &c.

MAY xxxi Days.

G	F	E	D	C	B	A	Days	*Fixed Feaſts, Remarkable Days, &c. according to New Stile.*
t	w	th	f	ſ	S	m	1	St. PHIL. & JAMES. D. br. 2 2. T. E. 9 59.
w	th	f	ſ	S	m	t	2	Sun riſes 5 36, ſets 7 25.
th	f	ſ	S	m	t	w	3	Invention of the Croſs.
f	ſ	S	m	t	w	th	4	Sun faſt of Clocks 3m 33s.
ſ	S	m	t	w	th	f	5	
S	m	t	w	th	f	ſ	6	St. John Evang. ante Port. Lat.
m	t	w	th	f	ſ	S	7	
t	w	th	f	ſ	S	m	8	
w	th	f	ſ	S	m	t	9	
th	f	ſ	S	m	t	w	10	
f	ſ	S	m	t	w	th	11	Day br. 1 24. Twil. ends 10 38.
ſ	S	m	t	w	th	f	12	Old May-day. Sun r. 4 19, ſets 7 42.
S	m	t	w	th	f	ſ	13	
m	t	w	th	f	ſ	S	14	Sun faſt of Clocks 4m 2s.
t	w	th	f	ſ	S	m	15	
w	th	f	ſ	S	m	t	16	
th	f	ſ	S	m	t	w	17	
f	ſ	S	m	t	w	th	18	
ſ	S	m	t	w	th	f	19	Dunſtan.
S	m	t	w	th	f	ſ	20	Sun in ♊ 44′ on 21 D, Noon, 1756.
m	t	w	th	f	ſ	S	21	Day br. 0 12, Twil. ends 11 49.
t	w	th	f	ſ	S	m	22	Sun riſes 4.5, ſets 7 55.
w	th	f	ſ	S	m	t	23	
th	f	ſ	S	m	t	w	24	*Pr. Fred. Will. b.* 1750. Sun faſt of Cl. [3m 36s.
f	ſ	S	m	t	w	th	25	
ſ	S	m	t	w	th	f	26	Auguſtine. No Night.
S	m	t	w	th	f	ſ	27	Venerable Bede.
m	t	w	th	f	ſ	S	28	
t	w	th	f	ſ	S	m	29	K. CHARLES II's NAT. and RESTOR.
w	th	f	ſ	S	m	t	30	
th	f	ſ	S	m	t	w	31	

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. Nº.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. Nº.	N M ●	F Q ☽	F M ○	L Q ☾
1	28	6	13	21	7	21	29	6	14	13	15	23	1 30	8
2	17	25	3	10	8	10	18	25	3	14	5	12	19	27
3	6	13	20	28	9	29	17	14	22	15	23	30	8	15
4	24	2	10	17	10	19	27	4	12	16	12	19	26	4
5	14	21	28	6	11	7	15	22	29	17	1 31	9	16	24
6	3	11	18	26	12	26	4	11	19	18	29	18	6	13
										19	9	16	23	1 31

PERPETUAL TIME-TABLES:
Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

JUNE, xxx Days.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
f	ſ	S	m	t	w	th	1	Nicomedes. No Night.
ſ	S	m	t	w	t	f	2	Sun riſes 3 52, ſets 8 8.
S	m	t	w	th	f	ſ	3	
m	t	w	th	f	ſ	S	4	*George Prince of Wales born*, 1738.
t	w	th	f	ſ	S	m	5	Boniface. Sun faſt of Clocks 2m 1s.
w	th	f	ſ	S	m	t	6	
th	f	ſ	S	m	t	w	7	
f	ſ	S	m	t	w	th	8	
ſ	S	m	t	w	th	f	9	
S	m	t	w	th	f	ſ	10	*Prſſe Amelia b.* 1711. *Prſſe Carol. b.* 1713.
m	t	w	th	f	ſ	S	11	St. BARNABAS.
t	w	th	f	ſ	S	m	12	Sun riſes 3 45, ſets 8 15. No Night.
w	th	f	ſ	S	m	t	13	
th	f	ſ	S	m	t	w	14	
f	ſ	S	m	t	w	th	15	Sun faſt of Clocks 0m 28.
ſ	S	m	t	w	th	f	16	Sun and Clocks together.
S	m	t	w	th	f	ſ	17	St. Alban.
m	t	w	th	f	ſ	S	18	
t	w	th	f	ſ	S	m	19	Sun in ♋ 22′ on 21 D. Noon, 1756.
w	th	f	ſ	S	m	t	20	Tranſl. of Edw. K. Weſt Sax.
th	f	ſ	S	m	t	w	21	Sun riſes 3 42, ſets 8 17. No Night.
f	ſ	S	m	t	w	th	22	*K.* GEO. II'*s Inaug.* Longeſt Day.
ſ	S	m	t	w	th	f	23	
S	m	t	w	th	f	ſ	24	St. JOHN BAPT. born.
m	t	w	th	f	ſ	S	25	Sun ſl. of Cl. 2m 5s. St. John's Col. El.
t	w	th	f	ſ	S	m	26	*King* GEORGE II. *proclaimed.*
w	th	f	ſ	S	m	t	27	
th	f	ſ	S	m	t	w	28	
f	ſ	S	m	t	w	th	29	St. PETER.
ſ	S	m	t	w	th	f	30	Buck-hunting comes in and continues till Holy-Rood. Exeter Col. Elec.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾
1	26	4	11	19	7	20	27	5	12	13	14	21	28	6
2	14	23	1 30	9	8	9	17	24	2	14	3	11	18	26
3	4	12	19	26	9	28	6	13	21	15	21	29	6	14
4	23	1 30	8	16	10	27	25	3	10	16	11	18	25	3
5	12	20	27	5	11	6	13	20	28	17	29	7	14	22
6	1 30	9	17	24	12	24	2	10	17	18	19	26	4	12
										19	7	15	22	29

PERPETUAL

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

JULY xxxi Days.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
S	m	t	w	th	f	ſ	1	No Night.
m	t	w	th	f	ſ	S	2	Viſit. of B. V. M. Sun r. 3 45, ſ. 8 15.
t	w	th	f	ſ	S	m	3	Dies Comitior.
w	th	f	ſ	S	m	t	4	Tranſ. of St. Mart. B.
th	f	ſ	S	m	t	w	5	Old Midſummer-day.
f	ſ	S	m	t	w	th	6	
ſ	S	m	t	w	th	f	7	Thomas à Becket.
S	m	t	w	th	f	ſ	8	Sun ſlow of Clocks 4m 30s.
m	t	w	th	f	ſ	S	9	
t	w	th	f	ſ	S	m	10	
w	th	f	ſ	S	m	t	11	No Night. Sun riſes 3 52, ſets 8 7.
th	f	ſ	S	m	t	w	12	
f	ſ	S	m	t	w	th	13	
ſ	S	m	t	w	th	f	14	
S	m	t	w	th	f	ſ	15	St. *Swithin*, or Swithun, B. of Winch.
m	t	w	th	f	ſ	S	16	[tranſ.
t	w	th	f	ſ	S	m	17	
w	th	f	ſ	S	m	t	18	Sun ſlow of Clocks 5m 39s.
th	f	ſ	S	m	t	w	19	
f	ſ	S	m	t	w	th	20	Margaret V. and M.
ſ	S	m	t	w	th	f	21	No Night. Sun riſes 4 3, ſets 7 56.
S	m	t	w	th	f	ſ	22	Mary Magdalen. *Prſſe Car. Matilda b.*
m	t	w	th	f	ſ	S	23	Sun in ♌ 53′ Noon, 1756. [1751.
t	w	th	f	ſ	S	m	24	Magdalen Coll. *Election.*
w	th	f	ſ	S	m	t	25	St. JAMES.
th	f	ſ	S	m	t	w	26	St. Ann, Mother B. V. M.
f	ſ	S	m	t	w	th	27	
ſ	S	m	t	w	th	f	28	Sun ſlow of Clocks 5m 56s.
S	m	t	w	th	f	ſ	29	
m	t	w	th	f	ſ	S	30	Dog-days beg. Sirius riſes with the Sun.
t	w	th	f	ſ	S	m	31	

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾
1	26	4	11	19	7	19	27	4	12	13	13	21	28	6
2	15	23	10	8	8	8	16	23	1 31	14	3	10	17	25
3	3	11	18	26	9	27	5	12	30	15	20	28	6	13
4	22	30	8	15	10	17	24	2	10	16	10	18	25	3
5	12	19	26	4	11	5	13	20	27	17	29	7	14	22
6	1 31	9	15	24	12	24	1 31	9	17	18	18	26	3	11
										19	7	14	21	29

PERPETUAL TIME-TABLES:
Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

AUGUST xxxi Days.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
w	th	f	ſ	S	m	t	1	*Lammas-day.* Day br. 1 27.
th	f	ſ	S	m	t	w	2	Sun r. 4 19, ſets 7 40. T. ends 10 31.
f	ſ	S	m	t	w	th	3	
ſ	S	m	t	w	th	f	4	
S	m	t	w	th	f	ſ	5	Sun ſlow of Clocks 5m 31s.
m	t	w	th	f	ſ	S	6	Transfiguration.
t	w	th	f	ſ	S	m	7	Name of Jeſus.
w	th	f	ſ	S	m	t	8	
th	f	ſ	S	m	t	w	9	
f	ſ	S	m	t	w	th	10	St. Laurence, Arch-deac. Rome, & M.
ſ	S	m	t	w	th	f	11	*Princeſs Auguſta* born, 1737.
S	m	t	w	th	f	ſ	12	D. br. 2 5. T. e. 9 53. Sun r. 4 36. ſ. 7 23.
m	t	w	th	f	ſ	S	13	
t	w	th	f	ſ	S	m	14	
w	th	f	ſ	S	m	t	15	Aſſumption of V. M. Sun ſl. of Clocks 3m 56s.
th	f	ſ	S	m	t	w	16	
f	ſ	S	m	t	w	th	17	
ſ	S	m	t	w	th	f	18	
S	m	t	w	th	f	ſ	19	
m	t	w	th	f	ſ	S	20	
t	w	th	f	ſ	S	m	21	Athanaſius. D. br. 2 38. T. e. 9 27.
w	th	f	ſ	S	m	t	22	Sun riſes 4 54, ſets 7 5.
th	f	ſ	S	m	t	w	23	Sun in ♍ 38′ Noon, 1756.
f	ſ	S	m	t	w	th	24	St. BARTHOLOMEW.
ſ	S	m	t	w	th	f	25	Sun ſlow of Clocks 1m 35s.
S	m	t	w	th	f	ſ	26	
m	t	w	th	f	ſ	S	27	
t	w	th	f	ſ	S	m	28	St. Auſtin B. of Hip.
w	th	f	ſ	S	m	t	29	Beheading St. John Bapt.
th	f	ſ	S	m	t	w	30	Sun and Clocks together.
f	ſ	S	m	t	w	th	31	

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q
	●	☽	○	☾		●	☽	○	☾		●	☽	○	☾
1	24	2	9	17	7	18	25	3	11	13	12	19	27	4
2	14	21	28	6	8	7	15	22	29	14	1 31	9	16	24
3	2	10	17	25	9	26	4	11	19	15	19	27	5	12
4	21	28	6	14	10	15	23	1 30	9	16	8	26	23	1 31
5	10	18	25	3	11	4	11	19	26	17	27	5	13	20
6	29	7	14	22	12	22	30	7	15	18	17	24	2	10
										19	5	13	20	28

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

SEPTEMBER xxx Days.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
	S	m	t	w	th	f	1	Giles, Abbot. D. br. 3 9. T. e. 8 50.
S	m	t	w	th	f	ſ	2	LONDON burnt 1666, O. S. Sun r. 5 14.
m	t	w	th	f	ſ	S	3	ſ. 6 44.
	w	th	f	ſ	S	m	4	
w	th	f	ſ	S	m	t	5	Sun faſt of Clocks 1m 45s.
th	f	ſ	S	m	t	w	6	
	ſ	S	m	t	w	th	7	Eunurchus.
	S	m	t	w	th	f	8	Nativity B. V. M.
S	m	t	w	th	f	ſ	9	Dog-days end. *Canis Major* r. 3 M.
m	t	w	th	f	ſ	S	10	
	w	th	f	ſ	S	m	11	Day Br. 3 35. Twil. ends 8 24.
w	th	f	ſ	S	m	t	12	Sun riſes 5 34, ſets 6 25.
th	f	ſ	S	m	t	w	13	
	ſ	S	m	t	w	th	14	Holy Croſs-day, or Exalt. of the Croſs.
	S	m	t	w	th	f	15	Sun faſt of Clocks 5m 11s
S	m	t	w	th	f	ſ	16	
m	t	w	th	f	ſ	S	17	Lambert B.
	w	th	f	ſ	S	m	18	
w	th	f	ſ	S	m	t	19	
th	f	ſ	S	m	t	w	20	D. br. 3 58. Twil. ends 8 1.
	ſ	S	m	t	w	th	21	St. MATTHEW. Sun r. 5 53. ſ. 6 5.
	S	m	t	w	th	f	22	Equal Day and Night in all the World.
S	m	t	w	th	f	ſ	23	Sun in ♎ 48′ Noon, 1756.
m	t	w	th	f	ſ	S	24	
	w	th	f	ſ	S	m	25	Sun faſt of Clocks 8m 37s.
w	th	f	ſ	S	m	t	26	St. Cyprian.
th	f	ſ	S	m	t	w	27	
	ſ	S	m	t	w	th	28	Sheriffs of London ſworn.
	S	m	t	w	th	f	29	St. MICHAEL. Hare-hunting comes in
S	m	t	w	th	f	ſ	30	St. Jerom. and laſts till the End of Feb.

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. No.	N M ●	F Q ☽	F M ○	L Q ☾
1	21	1: 31	8	16	7	16	24	1	9	13	10	18	25	3
2	12	20	27	5	8	5	14	20	28	14	29	7	14	22
3	1, 20	8	15	23	9	24	2	10	17	15	18	25	3	11
4	29	27	5	12	10	14	21	28	6	16	7	15	22	29
5	9	17	24	2	11	2	10	17	25	17	26	4	11	19
6	28	5	13	21	12	21	29	6	14	18	15	23	1, 30	9
										19	4	11	28	26

PERPETUAL TIME TABLES:
Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

OCTOBER xxxi Days,

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days,* &c. *according to New Stile.*
m	t	w	th	f	ſ	S	1	Remigius. B. of Rhemes.
t	w	th	f	ſ	S	m	2	D. br. 4 20. T. e. 7 39. Sun r. 6 13.
w	th	f	ſ	S	m	t	3	[ſ. 5 46.
th	f	ſ	S	m	t	w	4	Sun faſt of Clocks 11m 30s.
f	ſ	S	m	t	w	th	5	
ſ	S	m	t	w	th	f	6	St. Faith, V. & M.
S	m	t	w	th	f	ſ	7	
m	t	w	th	f	ſ	S	8	
t	w	th	f	ſ	S	m	9	St. Denis.
w	th	f	ſ	S	m	t	10	Old Michaelmas-day. Ox. & Cam. T. b.
th	f	ſ	S	m	t	w	11	D. br. 4 40. T. e. 7 19. Sun r. 6 33.
f	ſ	S	m	t	w	th	12	[ſ. 5 22.
ſ	S	m	t	w	th	f	13	Tranſ. K. Ed. Conf.
S	m	t	w	th	f	ſ	14	Sun faſt of Clocks 14m 5s.
m	t	w	th	f	ſ	S	15	
t	w	th	f	ſ	S	m	16	
w	th	f	ſ	S	m	t	17	Etheldred Virg.
th	f	ſ	S	m	t	w	18	St. LUKE the Evangeliſt.
f	ſ	S	m	t	w	th	19	
ſ	S	m	t	w	th	f	20	
S	m	t	w	th	f	ſ	21	D. br. 5 0. T. ends 6 59. Sun r. 6 52.
m	t	w	th	f	ſ	S	22	K. GEO. II. crowned, 1727. [ſ. 5 7.
t	w	th	f	ſ	S	m	23	Sun in ♏ 31′ Noon, 1756.
w	th	f	ſ	S	m	t	24	Sun faſt of Clocks 15m 45s.
th	f	ſ	S	m	t	w	25	*Criſpin,* Patron of Shoe-makers.
f	ſ	S	m	t	w	th	26	
ſ	S	m	t	w	th	f	27	
S	m	t	w	th	f	ſ	28	St. SIMON and JUDE.
m	t	w	th	f	ſ	S	29	
t	w	th	f	ſ	S	m	30	
w	th	f	ſ	S	m	t	31	

The NEW, FULL, and QUARTER MOONS.

Gol. No.	N. M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q
	●	☽	○	☾		●	☽	○	☾		●	☽	○	☾
1	22	30	8	15	7	16	23	1 31	8	13	10	18	25	3
2	12	19	26	4	8	5	13	19	27	14	29	7	14	22
3	30	8	15	23	9	24	2	9	17	15	17	25	3	10
4	19	27	4	12	10	13	21	28	7	16	6	14	21	29
5	8	16	23	1 31	11	1 31	19	16	24	17	25	3	11	18
6	27	5	12	20	12	29	28	6	13	18	15	23	29	7
										19	3	11	18	26

PERPETUAL TIME-TABLES: Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

NOVEMBER xxx Days.

G	F	E	D	C	B	A	Days	*Fixed* Feaſts, *Remarkable Days*, &c. *according to New Stile.*
th	f	ſ	S	m	t	w	1	ALL SAINTS. D. br. 5 18. T. e. 6 41.
f	ſ	S	m	t	w	th	2	ALL SOULS. Sun r. 7 13. ſ. 4 47.
ſ	S	m	t	w	th	f	3	All Souls College Election.
S	m	t	w	th	f	ſ	4	K. WILL. born. Sun f. of Cl. 16m 13s.
m	t	w	th	f	ſ	S	5	POWDER-PLOT, 1605, O.S.
t	w	th	f	ſ	S	m	6	Leonard. Michaelmas Term begins.
w	th	f	ſ	S	m	t	7	Pr. *Henry-Frederic* b. 1745.
th	f	ſ	S	m	t	w	8	
f	ſ	S	m	t	w	th	9	K. GE. II. b. 1683. N.S. Ld. Mayor's day,
ſ	S	m	t	w	th	f	10	K. GEO. II. Birth-day kept. [Lond.
S	m	t	w	th	f	ſ	11	St. *Martin*, B. & Conf.
m	t	w	th	f	ſ	S	12	D. br. 5 33. T. e. 6 27. Sun r. 7 30.
t	w	th	f	ſ	S	m	13	Britius B. [ſ. 4 29.
w	th	f	ſ	S	m	t	14	Sun faſt of Clocks 15m 11s.
th	f	ſ	S	m	t	w	15	Machutus B.
f	ſ	S	m	t	w	th	16	
ſ	S	m	t	w	th	f	17	Hugh, B. Linc. Anniverſary of Q. E-
S	m	t	w	th	f	ſ	18	[lizabeth's Procl. 1558.
m	t	w	th	f	ſ	S	19	
t	w	th	f	ſ	S	m	20	Edmund, K. & M.
w	th	f	ſ	S	m	t	21	D. b. 5 44. T. e. 6 16. Sun r. 7 45. ſ.
th	f	ſ	S	m	t	w	22	Cecilia. Old Martinmas-day. [4 14.
f	f	S	m	t	w	th	23	St. Clement. Sun in ♐ 41′ on 22 D.
ſ	S	m	t	w	th	f	24	Sun faſt of Cl. 12m 46s. [Noon, 1756.
S	m	t	w	th	f	ſ	25	Catherine. Pr. Will.-Henry-Fred. b.
m	t	w	th	f	ſ	S	26	[1743.
t	w	th	f	ſ	S	m	27	
w	th	f	ſ	S	m	t	28	Michaelmas Term ends.
th	f	ſ	S	m	t	w	29	
f	ſ	S	m	t	w	th	30	St. ANDREW. Anniv. Meet. Roy. Soc. [Princeſs Dowager of Wales b. 1719.

The NEW, FULL, and QUARTER MOONS

Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q	Gol. No.	N M	F Q	F M	L Q
	●	☽	○	☾		●	☽	○	☾		●	☽	○	☾
1	21	29	6	14	7	14	22	29	7	13	8	16	23	1 30
2	10	18	25	3	8	3	11	18	26	14	27	5	12	20
3	28	6	13	21	9	22	30	8	15	15	26	23	1	9
4	17	25	3	10	10	12	19	26	4	16	5	13	20	27
5	7	14	22	29	11	30	8	15	23	17	24	2	9	17
6	26	3	11	19	12	19	27	4	12	18	13	21	28	6
										19	2	9	16	23

PERPETUAL TIME-TABLES; Or General RULES for CHRONOLOGISTS, HISTORIANS, &c.

DECEMBER xxxi Days.

G	F	E	D	C	B	A	DAYS	*Fixed* Feaſts, *Remarkable Days, &c. according to New Stile.*
ſ	S	m	t	w	th	f	1	Day Break 5 44. Twilight ends 6 6.
S	m	t	w	th	f	ſ	2	Sun riſes 7 57, ſets 4 3.
m	t	w	th	f	ſ	S	3	
t	w	th	f	ſ	S	m	4	Barbary. Sun faſt of Cl. 9m 6s.
w	th	f	ſ	S	m	t	5	
th	f	ſ	S	m	t	w	6	*Nicholas.*
f	ſ	S	m	t	w	th	7	
ſ	S	m	t	w	th	f	8	Concept. B. V. M.
S	m	t	w	th	f	ſ	9	
m	t	w	th	f	ſ	S	10	
t	w	th	f	ſ	S	m	11	Day Br. 5 59. Tw. ends 6 1.
w	th	f	ſ	S	m	t	12	Sun riſes 8 5, ſets 3 55.
th	f	ſ	S	m	t	w	13	*Lucy.*
f	ſ	S	m	t	w	th	14	Sun faſt of Clocks 4m 34s.
ſ	S	m	t	w	th	f	15	
S	m	t	w	th	f	ſ	16	O Sapientia.
m	t	w	th	f	ſ	S	17	Oxford and Cambridge Terms end.
t	w	th	f	ſ	S	m	18	Princeſs *Louiſa*, Q. of Denm. b. 1724.
w	th	f	ſ	S	m	t	19	
th	f	ſ	S	m	t	w	20	Sun in ♑ 10′ on 21 D. Noon, 1756.
f	ſ	S	m	t	w	th	21	St. THOMAS. Shorteſt Day.
ſ	S	m	t	w	th	f	22	Sun riſes 8 7, ſets 3 53.
S	m	t	w	th	f	ſ	23	Sun and Clocks together.
m	t	w	th	f	ſ	S	24	Sun ſlow of Clocks 26s.
t	w	th	f	ſ	S	m	25	CHRISTMAS-DAY. 4th Quarter-day.
w	th	f	ſ	S	m	t	26	St. STEPHEN.
th	f	ſ	S	m	t	w	27	St. JOHN the EVANGELIST.
f	ſ	S	m	t	w	th	28	HOLY INNOCENTS.
ſ	S	m	t	w	th	f	29	
S	m	t	w	th	f	ſ	30	Sun ſlow of Clocks 3m 23s.
m	t	w	th	f	ſ	S	31	Silveſter, B. of Rome.

The NEW, FULL, and QUARTER MOONS.

Gol. N°.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. N°.	N M ●	F Q ☽	F M ○	L Q ☾	Gol. N°.	N M ●	F Q ☽	F M ○	L Q ☾
1	20	28	6	13	7	14	21	28	6	13	8	16	23	30
2	10	17	25	3	8	3	11	18	28	14	27	5	12	2
3	28	6	13	21	9	22	29	7	15	15	15	23	30	8
4	17	25	3	10	10	11	19	26	4	16	5	12	20	27
5	6	14	21	29	11	29	7	14	22	17	23	1 30	9	1
6	25	3	11	18	12	18	26	4	11	18	13	21	28	6
										19	1 31	9	16	24

FINIS.